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Kenny Concept of the Disease Infantile Paralysis

Sister Elizabeth Kenny

Having been requested to present an article for publication in THE PHYSIOTHERAPY REVIEW concerning the concept and treatment of the disease infantile paralysis or anterior poliomyelitis, I shall endeavor as far as possible to do so.

In the year 1940, I left Australia for the United States of America. I came to this country as an official visitor—my visit being sponsored by the Government of the State of Queensland, Australia. The object of this visit was to present to some research institution the result of my research concerning the disease anterior poliomyelitis. At the onset I would like it to be understood that I am not discussing the pathology of this disease. My desire is to present to those interested an outline of the symptoms presenting themselves and confirmation of this evidence. The treatment is fully described in the book now being published by the Bruce Publishing Company, St. Paul and Minneapolis. After visiting New York and Chicago, I eventually presented my letter of introduction to Dr. Melvyn Henderson of the Mayo Clinic, Rochester, who informed me that Dr. Wallace Cole and Dr. George Williamson of the city of St. Paul were anxious to investigate what I had to present.

I had endeavored vainly for many years to present to the medical men of Australia the fact that the disease infantile paralysis presented the opposite clinical symptoms to that generally recognized throughout the world and that the procedure of immobilization was not desirable or in any way a curative procedure. When it was made evident to me that my endeavors were useless, I took the opportunity that offered itself and visited England. My ideas were so opposed to orthodox theories in Australia that I was not given the opportunity to prove these symptoms existed in the acute stage.

However, a group of medical men undertook to observe the results of the work carried out in the Kenny clinic at Brisbane, Queensland, Australia, and the Elizabeth Kenny Clinic, Royal North Shore Hospital, Sydney, Australia. The patients treated in these clinics previously had received orthodox treatment for the most part from three years to twenty years. It was most unfortunate that these gentlemen were viewing this disease from the orthodox point of view and, therefore, could not appreciate the fact that the disease itself had caused irreparable damage, owing to nontreatment of the symptoms in the acute stage. The nursing care is of paramount importance. This phase had been entirely neglected in all instances. Therefore, fixed deformities had materialized, such as: scoliosis, lordosis, kyphosis, torticollis, dislocation of the femur, tilted pelvis with apparent leg shortening, dropped pelvis with leg lengthening, genu valgum, drop foot, valgus and varus, calcaneus and cavus, supinated heel and abducted heel, rotated scapulae, winged scapulae, elevated shoulder, cupped shoulders, fixed pronation and fixed supination of the forearm, contracted hamstrings and fixed flexion of the knee, stiffness and shortening of muscles,

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claw toes and fingers. With an intelligent understanding of the true symptoms of the disease all of these varied and disastrous sequelae could have been avoided. Unfortunately, this fact then was unknown in Australia, and because I advocated an entirely opposite approach to the treatment of this disease my work was wholeheartedly condemned without a trial. It was at this stage impossible to undo all of the tragedies that had been allowed to occur in these unfortunate victims of this disease.

After this condemnation the question arose whether it was advisable to continue the work in the six clinics which had been established throughout the states of Queensland and New South Wales. Inquiries were made in Brisbane, Queensland, by the Under Secretary of the Health Department, Mr. Charles Edward Chuter, and it was ascertained that out of the 380 patients receiving treatment at the out-patient's clinic, situated in George Street, Brisbane, Queensland, 132 had been restored to a wage earning capacity at the end of two years. A great number of these patients had been receiving invalid pensions which they now could relinquish, which meant a saving to the Government of much more capital than it took to keep the clinic in operation. Consequently, the clinics were kept operating; unfortunately, I had not proven anything to the medical profession with regard to the disease and its symptoms, but I had proven to the Government that the proposition was economically sound.

It was at this juncture I visited England, and at the invitation of Sir Frederick Menzies, Director of Health of the London County Council, I undertook to supervise the work and teach the method at a ward set apart for this purpose at Queen Mary's Hospital, Carshalton, Surrey, England. I was given early convalescent cases at this institution which was much more satisfactory, but not wholly so, as the patients were admitted to the Infectious Disease Hospital first, where they were immobilized, and then transferred to Queen Mary's after the isolation period, where some of them were treated for some time in the orthodox wards and then passed to the Kenny ward. Owing to this arrangement, I was not given an opportunity to point out and teach the care of the damaging symptoms of this disease. I made one attempt to introduce the subject of muscle spasm, but the information was coldly received. I was informed the thought was entirely new and consequently ignored.

In the course of time a report was presented by the Australian Royal Commission who had gone to the trouble of collecting evidence from the United States, Russia, Great Britain and the Continent. Two of their number had visited these countries, and, as they expressed it, they were then in a position to make a definite statement. This statement was that my abandonment of immobilization was a grievous error and fraught with great danger and on no account should any patient, either acute or convalescent, be allowed to receive this treatment. This report further stated that the kernel of all modern treatment was immobilization and reeducation. This report made it plain that deformities occurred in this disease despite the best efforts of the orthopedic surgeon, and the abandonment of immobilization in their opinion would increase these deformities. I may add here that out of the many hundreds of patients receiving treatment at the clinics there was not one who had not some deformity— most of them were grossly deformed. This was also the case with the long-standing cases we had accepted for treatment in the clinic at Queen Mary's Hospital, England.

During the time I was engaged at Queen Mary's Hospital an epidemic broke out in the state of Victoria in Australia, and I was invited to supervise a ward at the convalescent home attached to the Children's Hospital, Melbourne, Australia. Two well-known orthopedic surgeons supervised these operations and in due course presented a report. Consequently, within one year three reports were published in the journals of medicine in Australia and England.

The first one, already quoted, condemned my work on the grounds that deformities would materialize from any abandonment of immobilization and acknowledged that deformities did occur despite their best efforts, but if immobilization was abandoned that there would be such a crop of deformities which would equal the deformities met with before the disease was treated on good logical lines. This statement proved that even more gross deformities had been registered before immobilization had been used. Therefore, the two following reports must have been to the authors of the first report startling and should have induced an immediate investigation.

The first to appear after the report of the Royal Commission was the London report, and this paper definitely stated that my abandonment of immobilization had not brought about any deformities nor was there any delay in the initial return of power; and, consequently, in their opinion splints were not desirable in the acute stage of the disease as the patients were much more

comfortable without splints. However, there was no investigation made why this phenomenon had occurred, and my attempt at an explanation was met with cold indifference.

The third report within the year was published by Drs. W. Forster and E. E. Price of Melbourne, Australia. The same acknowledgment that expected deformities from muscle imbalance had not materialized in the patients treated by the Kenny Method but at the same time deformities had occurred in their own splinted patients which they, themselves, had treated or received from other surgeons. These gentlemen remarked that this factor called for comment. They also noted the absence of stiffness in the patients treated by the Kenny Method and added that it had been a troublesome feature in the patients they, themselves, had treated or received from other surgeons. They emphatically suggested the reason for this absence of stiffness should be earnestly sought as the condition prevented satisfactory reeducation from being given. This report also contained the statement:

"Miss Kenny lays great stress upon the condition of muscle spasm, its prevention and cure. We consider her views on this subject require careful consideration."

It is this point that brings me up to the value of understanding the true symptoms of this disease and the careful nursing of these symptoms. The ultimate recovery of the patient is interdependent on the work of the nurse and the follow-up of an intimate knowledge of the physical therapist of the scientific method of overcoming the incoordination and alienation from consciousness of the part which has been disrupted by the presence of spasm and disorganization at the site of the lesion. The muscles are sick and require careful attention. In 100 per cent of the cases the spinal muscles and the muscle of the posterior thigh are affected. Therefore, a visual analysis is given to determine what other part of the physical make-up requires attention. This procedure is described fully in the book now being published. My principal objective in granting the request to present this paper is to prove the value of an up-to-date knowledge of the disease and the value of physical therapy in cooperation with careful nursing.

Statistics have been presented to the medical world by Dr. McCarroll of St. Louis which would lead one to believe that physical therapy has no part in the treatment of this disease. Unfortunately, Dr. McCarroll made the same mistake as the Royal Commission of Investigation in Queensland—that is, making statements without evidence to support the statements. It was owing to this error that I was happy to see that Drs. McCarroll and Crego were included in the committee that visited the clinics supervised by me at the University of Minnesota Hospital and the City Hospital, Minneapolis, November 22 and 23. This committee consisted of Dr. Melvyn Henderson, Mayo Clinic, Chairman; Drs. Key, McCarroll and Crego, St. Louis; Dr. Compere, Chicago; Dr. Schumm, Milwaukee; and Dr. Funsten, Charlottesville, Virginia. I was asked by these gentlemen what I considered a normal recovery. Several patients were presented that had received treatment for the symptoms presenting themselves in the acute stage and had recovered. The condition of these patients was such that Dr. McCarroll doubted the diagnosis of the patients. However, it was explained by the medical supervisor that the diagnosis is made by the pediatrics staff and is definite before the patients are handed over to our department and that they had exhibited the same symptoms and conditions as the patients now receiving treatment in the isolation ward. I also explained that I would be most happy to present these six cases on the following day, November 23rd.

I then produced for the inspection of the committee the patient Dr. McCarroll had seen on his previous visit of one hour at the General Hospital a few months previously whom he had publicly stated had two flail legs. I endeavored to explain upon that occasion that I did not consider this patient had flail legs but was suffering from the usual symptoms. However, it was evident by the report of Dr. McCarroll that he had accepted him as one of the patients where physical therapy would have been useless. It is important to note that Dr. McCarroll upon this occasion admitted the boy had made a satisfactory recovery—in fact, he was able to turn a backward somersault.

Examples were also presented at this meeting of patients who were nonparalytic but were hopeless cripples through the neglect of the treatment of the symptoms in the early stages. These patients had received (1) orthodox treatment for one year and six months, and (2) four months bed rest and no treatment before reporting to Minneapolis. The film pictures of these patients recorded satisfactory improvement in the correction of their deformities after treatment had been given. This was admitted by all present.

On Monday, November 23rd, this committee was shown the patients in the acute stage in the isolation ward where the symptoms of the disease were being treated. These patients were

suffering from spasm, alienation and incoordination. Patient number one had spasm in the quadratus lumborum and an apparent leg shortening. Patient number two had been treated for spasm in the hamstrings and a satisfactory relaxation had occurred. However, the second symptom, alienation of the quadriceps was present. The patient was examined by Dr. Key who pronounced the quadriceps completely paralyzed. This was agreed by Dr. McCarroll and all present. I disagreed with this verdict and proceeded to restore the brain path by our method and succeeded in doing so in the presence of the committee. A strong contraction occurred and the patient was able to hold her leg in extension. This demonstration no doubt proved to Dr. McCarroll that his statement published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, November 17, 1942, was absolutely incorrect. This statement reads:

"Muscles that have previously been considered paralyzed she prefers to consider as merely alienated because of the spasm existing in the opposing groups as a result of their involvement; i.e., the muscles we have originally considered involved she considers satisfactory but merely alienated. She uses as proof the fact that these muscles later show evidence of return even though they may never attain more than a trace in power. She refuses to admit that this could be due to restitution of function in a few of the ganglion cells."

I was very happy to prove to Dr. McCarroll that his statements were incorrect and that when the physiological block is removed by good treatment the unaffected muscles that he admits were recognized previously as the paralyzed muscles responded strongly and could hold the leg in full extension. I have achieved this upon many occasions.

In the report of Dr. Alfred Deacon, orthopedic surgeon of the Children's Hospital, Winnipeg, concerning the 1940 epidemic (where I was called in consultation) a statement is made reading:

"We were astounded to see Miss Kenny cause patients to use flaccid muscles, which we had observed to be totally paralyzed, merely by restoring the patient's mental awareness of these muscles, and thus correcting their alienation."

This evidence also was substantiated by all members of the medical profession present with whom I have had the honor of associating during this past two and a half years. Therefore, the succeeding statements made by Dr. McCarroll in this paragraph are both interesting and arresting and read:

"Since such ideas cannot be reconciled to our present knowledge of the proved pathologic process in this disease, and since many of her patients also show residual paralysis and even flail extremities I feel certain that this method in time will take its place among the others offered by the field of physical therapy as having been tried out and found wanting."

Since I had proved to Dr. McCarroll that the apparently flail legs he saw upon his brief hour's previous visit had made a good and satisfactory recovery, and I, in his presence and the presence of witnesses, treated the condition of alienation with a most satisfactory restoration of function with a short space of a few seconds and also presented nonparalytic cases which were hopeless cripples for lack of proper treatment of the symptoms other than paralysis but were just as damaging, I claim true physical therapy is most important.

When treatment is given for the symptoms of the disease, as I see it, the percentages of recoveries usually are up to 80 per cent and sometimes more with well-trained technicians. When treatment is given for the symptoms supposed to exist by orthodoxy, according to Dr. McCarroll's report, the highest percentages of normal recoveries is 13 per cent.

All the evidence submitted in this paper either was given by medical men or demonstrated in the presence of medical men and, I would say, completely refutes the statements made regarding the ineffectiveness of physical therapy in the disease infantile paralysis. It also will be understood why I so emphatically state that I am not discussing the pathology of this disease. The statement made by Dr. McCarroll will explain why. It was agreed by all present that deformities had not been seen in the cases treated by the Kenny Method. However, it is interesting to record that evidence was produced where deformities had been corrected when the patients were transferred from the orthodox treatment to the Kenny. This evidence was submitted to the committee mentioned above.

I was grieved to see an article appearing in the INDIANAPOLIS MEDICAL JOURNAL, December 12, 1942. This article was edited by Dr. Howard Mettel and dealt with the subject of the disease infantile paralysis and contained the following statements:

"In July 1942, the Director of the National Foundation for Infantile Paralysis inspected and approved the Riley Center as a school for

teaching the Sister Kenny Method of treatment."

"Following the certification of this school, the Riley Hospital Center and the Division of Services for Crippled Children of the Indiana State Department of Public Welfare completed arrangements for the training of the field staff of the Crippled Children's Division at the Indiana University Medical Center. Each and every nurse and physical therapist of the Crippled Children's staff has now completed the course and is qualified to teach and apply upon request this type of treatment as a part of the field services offered by the Division of Services for Crippled Children."

It is now December 1942, less than six months from the date mentioned. The routine for the correct teaching of this method is as follows:

In order that a physical therapist may become a teacher, she is expected to be associated with the work for at least two epidemics—that would mean at least one year's close association. During this time they are given special lectures in anatomy, physiology, kinesiology—consisting of muscle classification, muscle typing, muscle stimulation, muscle analysis, the art of reeducation inclusive; the treatment of spasm, alienation and incoordination, the correct handling of all phases of the disease from the day of the onset to the ultimate recovery. She is expected to pass both a written and a practical examination—the latter in the presence of a Doctor Specialist, who has been associated with the work for two years. If successful in her examination, she will receive a certificate signed by the Dean of the Medical School, the President of the University and myself.

To become a Kenny technician the physical therapist must complete a nine week's course and pass a written and practical examination and she or he then, if successful, will receive a signed certificate. A nurse to become a technician must be closely associated with the work for six months and taught the physiology, anatomy, kinesiology as described above, including the nursing in the acute stages and the reeducation. They also are required to sit for their examinations and, if successful, will receive a certificate of efficiency. The type of treatment taught in Minneapolis is for the opposing symptoms to that generally accepted and treated as described in the journal mentioned, and I would consider it an impossibility for any technician to teach satisfactorily without the necessary experience.

I have spent the greater part of my life perfecting this work in order that I may present it as a service to the medical world. Understanding that the duly qualified medical practitioners are the keepers of the nation's health and well-being, I have endeavored to present this work to the physical therapists and medical men of this country and would appreciate their cooperation in establishing it on a firm basis. Up to date 186 physicians have attended the classes held in connection with the University of Minnesota Medical School, and 95 technicians have been trained and 24 are in training. The names of technicians holding certificates could be obtained from the University of Minnesota.

Correction

In the November-December 1942 issue, the article on "The Electrical Stimulation of Denervated Muscle" by S. L. Osborne, Ph. D., and F. S. Grodins, M. D., should have contained an acknowledgment that the work covered by this article was aided by a grant from the National Foundation for Infantile Paralysis. This paper also was read before the Annual Conference of the American Physiotherapy Association, College Camp, Wisconsin, June 29, 1942.

Some Effects of Early Sitting on the Body Mechanics of Infancy and Childhood

Mabel L. Fitzhugh

One of the most frequent questions asked at the Children's Health Center is: "When should my baby sit up?"

To find the best answer has been an absorbing quest, covering seven years and several thousand babies. Measurements were taken from early infancy through preschool years, comparing the children who sat early and long with those who learned to creep, pull up, stand and even walk before they were allowed to sit except for feeding.

Many books and articles were read to find what was advised by the authorities in child care, some of them having been written over a hundred years ago.

Dr. John Eberle, in 1834, wrote: "The manner in which very young children are commonly carried is extremely reprehensible as it is calculated to give rise to very unfortunate consequences in relation to the health and regular conformation of the child's body. I allude to the common practice of carrying infants with their bodies in the erect position before the spine and muscles have acquired a sufficient degree of firmness to support the trunk and head in this posture." He quotes Struve as advocating that infants be carried in a small oblong flat basket[1].

Many others down to the present day urge that babies be carried and laid in a perfectly horizontal position, that they be kept from propping or sitting until they are old enough and strong enough to sit with perfectly straight backs[2, 3, 4, 5, 6].

The urge to prop a tiny baby up with pillows is very strong in a young mother. She wants to look at her baby, to smile, wave and talk to him while she works. She holds the baby in the sitting position in her lap so others may see and admire, and carries him seated on her arm though his back bulges and his head wabbles.

The infant is born with a round back but Nature has supplied a valuable device called the Landau reflex of the back extensors for straightening and strengthening it. This appears soon after birth in healthy infants who have been placed on their stomachs for part of their waking hours. It can be elicited in the average baby of one month by placing him on his stomach, naked, and raising his thighs slightly, with legs parallel (Fig. 1). The long erector spinae, the glutei and the quadriceps will spring into action, automatically lifting the head, straightening the back and stretching out all the fetal flexions of the knees and hips. However, if the baby spends a large part of his early months propped up with pillows this reflex may be inhibited and in some cases has been lost, thus depriving the child of one of Nature's most valuable aids to erect posture. This is particularly true of the babies who are laid on their backs, both for sleeping and waking. The Landau reflex is strongest at four or five months of age, enabling the baby to arch his back and raise his head high[7].

Fig. 1. ***Landau reflex in infant 7 weeks old.***

The baby's head is disproportionately large, compared with the adult head. It may weigh as much as 25 per cent of his entire weight. The neck is short, the vertebrae are small and very soft, being mostly cartilage, but calcifying during childhood into the shape they may keep for life. The children who have sat too young and too long at a time in infancy show the effects in their necks. The vertebrae have an exaggerated

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incurve and the muscles are short and tense. There is a corresponding rounding of the upper back which throws the head forward, causing additional tension in the neck muscles and preventing normal circulation. Maude Forrester Brown says, "It cannot be too much stressed that no single alteration can be made in the position of the head without altering the whole of the spine."[8]

The majority of babies are born with well-rounded, full chests with parallel sides. This early perfection can be preserved by preventing early sitting. Four- or five-month-old babies begin to show a flare at the lower border of the chest after only a month of propping with pillows, in some cases increasing as much as an inch the circumference of the chest at this level. The chest depth will decrease and its breadth will increase, the chest length will decrease and the length of the abdomen will increase. Then, if the habit is discontinued and stomach-lying on the floor is substituted, the chest will regain its former proportions with paralled sides, since the ribs and their articulations are very elastic at this age. However, if the sitting continues the chest will harden in a shape that is hollow above and flared below. This deformity never has been seen in infants under three months of age under our observation nor in older children who were kept from sitting in infancy (Fig. 2).

Fig. 2. Hollow chest and pot - belly of a sitter.

Some mothers are afraid to put a baby on the floor to creep for fear of germs or catching cold, so the baby is kept in his crib, carriage or high - chair, tied in if the child is active and tries to climb out. He is given a number of small objects to play with, or picture books. He learns to use his hands and eyes too young, leans forward and plays with his toys in his lap, thus beginning wrong sitting habits when he should have been clothed in coveralls and placed on his stomach on the floor in a room where he could learn to creep freely about, pull up by the furniture, get down and creep again, using all his big muscles toward a strong, uniform development. The objects in the room should not be such that he will injure or be injured by them, and a barricade across the doorway allows the mother to watch his activity. Standing in his bed or pen is nearly as bad as being tied in his chair or carriage, as it may injure the feet and legs and prevents the general activity obtained by creeping.

Fig. 3. Streamlined hips of a creeper.

Fig. 4. "A go-getter from the beginning." Note full chest, flat stomach and straight back.

Sitting should be the last achievement of the baby. If ample opportunity for learning to creep is allowed from the age of four months the baby will creep more or less uniformly with both hands and knees. He will pull himself up to his feet and stand, walk around the furniture and even walk alone before he does much sitting. But if a baby is kept in his bed, carriage, high-chair, pen, or canvas jumper he is deprived of a uniform development and the best exercise he could get. His body, legs and feet will bear the marks of pressures and show the lack of uniform activity. When he does try to creep he may sit on one foot and push with the other, an asymmetric method of progression used by habitual sitters.

The contrast between the creepers and the sitters is striking. The creeper has firm muscular

tone, well poised head, full chest, straight back, flat stomach, streamlined hips, parallel legs and an assured gait when he learns to walk—a go-getter from the beginning (Figs. 3 and 4).

The sitter has flabby muscles, usually is overweight as a baby, with excess fat between waist and knees, forward head, hollow chest with marked flaring of the low ribs, prominent, sagging abdomen, lordosis when standing but round back when sitting (Figs. 5 and 6). He stands with legs wide, staggers and sits down suddenly when learning to walk (possibly due to lack of tone and coordination between the glutei and quadriceps).

Fig. 5. Lordosis when standing.

Fig. 6. Round back when sitting.

It is difficult to decide whether the potbelly which is so common in the early runabout years is caused by weak, overstretched abdominal muscles, the hollow chest above or the hollow lumbar region behind it.

The sitting baby has no opportunity to balance the tone of the hip flexors and extensors and the abdominal wall, so when he does get around to pulling himself up to a standing position his hip flexors are too short and his glutei too long and flabby from inactivity and pressure. How much lordosis in later life results from this early standing with lumbar pulled forward by tight flexors cannot be proved, but it is noticeable how little lordosis and potbelly are seen in the creepers when they stand.

After the child is two years old, sitting on the floor for play should be prevented as much as possible since there it is hard to maintain a good alignment of head, back, legs and feet. Small toys can be kept on the child's own table, with a well-adjusted chair for comfortable sitting. A large table or long shelf at elbow height when standing gives scope for trains. Continuous playing with electric trains on the floor is sometimes a cause of deformity in backs and feet.

It has been thought that children outgrow these early defects, that wings, hollow chests and potbellies, bowlegs, knock-knees and flat feet are normal stages in a child's development but a large proportion of college freshmen still bear the marks of these early defects. In certain cases they are found to cause a sensitiveness which prevents participation in sports, especially swimming, and the wearing of formals on the part of the girls. Mothers need to be taught how to prevent posture defects from infancy through the growing period so that our young people may be spared unnecessary suffering.

The effect of early and habitual sitting on the pelvic development of girls deserves a chapter in itself, with X-ray evidence carried up to the time of childbearing. In X-ray studies of a large number of pregnant women, Caldwell, Moloy and Swenson[9] found variations in the shape of the lower pelvis as caused by variations in the splay of the side walls laterally and the curvature of the sacrum in the saggital plane (Fig. 7). These abnormalities tend to decrease the size and distort the shape of the birth canal. That these conditions might happen as a result of early sitting habits is a possibility which carries weight with the mothers, many of whom have just gone through difficult childbearing.

Lowman points out the damage to the pelvic structures through habits of sitting on one foot, the other thigh abducted and inwardly rotated —a habit common in girls who sit on the floor for play. This produces a downward and lateral thrust of the weight of the body causing a condition known as tortiopelvis[10].

The average girl is less active than a boy, is inclined to sit quietly playing with her toys or reading, while down underneath she may be developing not only a narrow, crooked opening but the continued pressure may prevent normal development of the uterus and its position may be altered thereby. Goldthwait and his collaborators[11] believe that with a true potbelly (protuberant abdominal wall below the umbilicus) there must be a marked backward thrust of the lower

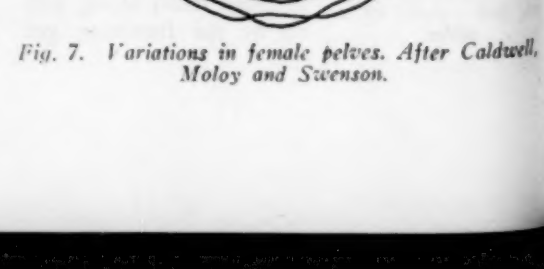

Fig. 7. Variations in female pelves. After Caldwell, Moloy and Swenson.

abdominal viscera directly into the pelvic cavity causing a malposition and malformation of the uterus and a weakened pelvic floor. The bent and twisted uterus which causes pain during menstruation may have its origin during childhood. We have observed the sitting habits of one such case for over twenty years.

The sitters usually are the children who begin to lose interest in their food between the ages of 2 and 4 years, lose weight or fail to gain as their bodies grow long and thin. They are apt to have trouble with tonsils and adenoids, have frequent colds and constipation. They are the despair of their mothers and the chief problem of the pediatrician[16]. Their poor posture is said to be the result of malnutrition. But the student of body mechanics does not expect to find normal function in a machine laboring under the difficulties of malalignment and maladjustment. The physiological effects of sitting with round back on the heart, lungs, diaphragm, stomach and viscera, nerves and circulation have been described in "Body Mechanics in Health and Disease."[11] It is a possibility that the stomach of the child might be so distorted by wrong position that the "J" type is his for life, since all the tissues are more elastic in infancy and childhood. Henderson[12] made a roentgen study of 110 newborn stomachs and found only 3 of the fishhook type, the rest more lateral in shape, 59 being of the type known as "steerhorn." He says, "As infants are observed on roentgenograms the stomach appears high and close to the diaphragm. This is particularly true in the recumbent position. In the erect posture, however, the greater curvature has been seen any place from the level of the first lumbar to that of the first sacral vertebra at various times in the same infant. The most common position is opposite the twelfth thoracic or first lumbar vertebra."

The majority of runabouts lose their appetites as they begin to grow taller and the trunk lengthens. This is particularly true of the children who sit with round backs. In a scientific investigation made in a university town the incidence of anorexia was 87 per cent among the little children[13]. Other writers find from 50 to 75 per cent of the runabout children have little or no interest in their meals[14,15,16]. Schlutz[16] quotes Sauer as saying that "gastric atony resulting in delayed emptying time of the stomach and diminished secretory function are outstanding dysfunctions in the child suffering from primary chronic anorexia. The emptying time in certain of these cases is sometimes delayed as much as 2 hours over that of the normal child. The free and combined hydrochloric acid, especially the former, is greatly diminished in the child with anorexia, the free hydrochloric acid in some cases being as low as half that found in the normal child." Experimental work showed that the child had a marked decrease in motility—as regards both duration and number of contractions occurring during the period of activity. The type of contraction was also decidedly different from that of the normal, well-nourished child.

The accompanying X-ray of a five-year-old with no appetite shows his habitual sitting position with feet dangling and its effect on the shape of his stomach (Fig. 8). His mother stated that he could eat only a few bites and then there just did not seem to be any more room for food. The second plate shows the change in the shape of the stomach and also the neck effected by supporting his feet and straightening his back (Fig. 9).

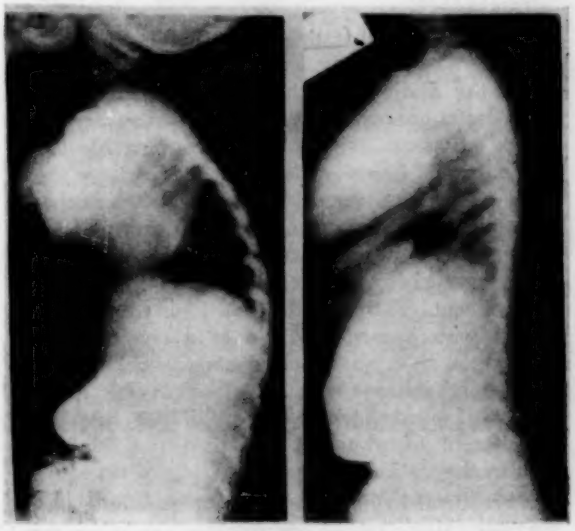

Fig. 8. Note shape of stomach and neck. *Fig. 9. Change effected by correct sitting position.*

It is considered in certain cases that refusal to eat is psychological, negativistic, or the child is naturally finicky. But it has been recorded in the majority of cases of lack of appetite under observation at the Center that when the child has been made comfortable in the erect position at mealtimes, that is, feet supported so that there is no pressure under the knees, in a shallow seat with lumbar and dorsal back supported but no pressure against the hips and the table top at elbow height (Fig. 10), the appetite improves, there is a gain in weight and the psychological tension disappears. It is difficult for a child or an adult to sit erect for more than a few seconds with feet dangling (Fig. 11). Dis-

Fig. 10. *Furniture that fits encourages good posture.*

Fig. 11. *Dangling feet cause round backs.*

comfort and fatigue will cause him to slump, particularly if he never has had a habit of sitting straight.[17,18]

It is possible that the sitting habits of the nation as a whole may have had something to do with the findings of the medical examiners on the draft boards. Overstuffed furniture with deep, soft seats—riding in overcomfortable cars, trains and buses—sedentary occupations carried on with no regard to correct body mechanics—all of these alter correct alignment and tend to prevent a normal action of vital organs. It is not surprising that malnutrition is so common an ailment. The Goddess of Plenty must look down with a sardonic grin at a country overflowing with a variety and abundance of foods whose inhabitants are literally starving in the midst of plenty, whose little children fuss over a plateful of vitamins and then two-thirds of the food goes into the garbage.

Structural hygiene should have a definite place in the high school curriculum—as necessary surely as ancient history or a knowledge of how to make puppets. The future of our country depends upon the welfare of its physical foundation. Mothers-to-be need to be educated in the principles of correct alignment of their children's bodies. These are so simple and obvious that the least literate mother can understand the reasons why and follow the rules with pleasure[19].

"Faulty body mechanics in early life, then, becomes a vital factor in the production of the vicious cycle of chronic disease and presents the chief point of attack in its prevention." This quotation comes from the preface to the last (1941) edition of "Body Mechanics in Health and Disease."[11]

Dr. Armitage Whitman, in his recent book "From Head to Foot," has made an interesting suggestion with which the structural hygienist can agree heartily: "If I were in charge of a laboratory for the physical education of infants supplied with large funds by some inquisitive foundation I should like to be given a few infants on whom to experiment. Devoted expert muscle trainers would keep the child off his feet, while by carefully graduated exercises they built up the weak and erratically controlled muscles against the hardest task that they must eventually one day assume—the maintenance and propulsion of the body in the upright attitude. The children would not be allowed to sit up until they could sit up straight, nor stand until they could stand properly. They would be educated from the ground up in the correct form of the art of walking . . . I should be willing to wager a large sum on their superior physical perfection."[20]

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Therapy of Burns in War

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The subject of the therapy of burns in wartime is indeed important for all our consideration, not only from the civilian standpoint but also from the standpoint of the armed forces. It has been reported that in the epochal disaster at Pearl Harbor about sixty per cent of the casualties were burns. These burns were mostly the so-called flash burns which are rather superficial; that is, they involve to only first or second degree the layers of the skin. The other types of burns that were encountered at that time were the deep penetrating burns due to fragments of shell or fragments of phosphorous from grenades and the explosive incendiary types of burns. A peculiar distribution of the flash type of burn is that it involves only the skin which is exposed. Even the slightest film of clothing is capable of protecting the wearer from flash burn, so commanding officers prevail upon the men in the line of duty to wear some sort of protective clothing, preferably with long sleeves, a shirt that covers the entire trunk and pants which go down to the shoe tops. Another peculiar type of distribution of the burn area was that which took place in the case of pilots, who, when they were faced with an explosion, usually put their hands up to guard their face and thereby suffered burns of the hands, forearms and face.

The therapy of burns in itself differs little in wartime or peacetime. There are certain surgical principles which must be borne in mind in treating burns at anytime. The first principle is to add no further injury to that which already has taken place. This involves primarily the avoidance of infection. To do this the wound should be covered as quickly as possible with sterile linens and examined or treated only by persons with adequate cap and masking to prevent droplets from nose and mouth contaminating the area. We have noticed in the charity hospital in Chicago, the Cook County Hospital, that it is the neighborhood pet who has the hardest time of it—he has the most neighbors coming over to see how badly he is burned and suggesting therapy before starting him to the hospital.

The other type of injury that we must prevent is an increase in the depth to which the burn has destroyed tissues. We can prevent this by avoiding the use of any protein precipitants which injure tissues, such as tannic acid, gentian violet, silver nitrate and picric acid. When applied to a surface which may be on the borderline of one that will heal spontaneously (that is, a second degree burn), these substances may convert it into a third degree burn which requires restorative surgery to heal.

The next principle in the treatment of burns is to bring about healing as rapidly as possible. Attention should be directed first of all to general body needs—of the combating of shock. Shock in burns can be divided roughly into three different types. The first usually occurs immediately and is known as primary shock. This primary shock is similar to that following any serious traumatic injury and may be dependent upon a number of factors. It perhaps may be due to the liberation of the products of breakdown of skin proteins; it may be due to a certain extent to psychic elements, or it may be due to the

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tremendous exertion the individual makes in an attempt to avoid the oncoming catastrophe. Therefore, this primary type of shock can best be relieved by anything that will tend to counteract these positive factors; namely, anything of a sedative character to relieve the psychic element, the best of which and that which has proven most satisfactory in practice and battle engagements is morphine. It has been the practice of the armed forces to carry so-called syrettes with individual doses of morphine in solution ready for instantaneous use. External heat may forestall further loss of tissue fluids, and it also allays the sense of chilliness that the patient experiences following this undue exertion that he has gone through. The use of various vasospastic agents such as adrenalin, caffeine and sodium benzoate also have their place in treatment according to some men.

After the period of primary shock, and usually within the first forty-eight hours, the so-called secondary shock is likely to make its appearance. This type of shock, in the opinion of almost all people, is due to the loss and redistribution of the fluid portions of the blood—namely, the serum and plasma. Plasma is lost not only from the burned surface in weeping but also into the subcutaneous tissues about the site of injury, similar to edematous changes occurring after mechanical trauma of other types, as a direct result of vascular injury. Therapy of this type of shock is directed then to the reestablishment of fluid balance by giving adequate amounts of plasma and prevention of its loss by application of a proper dressing—to be described later.

There is a third type of shock which comes on usually within the first eight days of the illness, especially during the third to eighth days. The etiology of this type of shock is not clearly delineated. It does not appear with any degree of regularity in proportion to the extent of body surface burned or the depth of the burn, or the age or size of the patient. It is thought by a great number of men to be due to the absorption of toxic products from the site of the burn. A number of experiments have been performed in an attempt to establish this view, but none of them as yet has proven satisfactorily that it is actually the cause of this peculiar type of shock.

Let us now consider a little closer the therapy of the individual patient with his burn. The immediate first aid treatment should consist of the application of a dry, sterile protective dressing which can be removed easily at the time the wound is to be dressed permanently, and the administration of morphine (in the amount twice the usual preoperative dose), vasospastics, external heat, etc. The patient then should be taken to some clearing station or first aid casualty station or hospital where the administration of plasma may be begun. This plasma helps to ward off the secondary shock and the amount to be given is roughly proportional to the area and the depth of the burn. Various formulae have been developed, many of which are too complicated to keep in mind, but a good practical rule to follow if one has an hematocrit available is to give about 100 cc. of plasma for each degree of elevation of the hematocrit reading, the normal reading usually being about 45. Therefore, if you had an hematocrit of 55, showing that here was hemoconcentration of relatively moderate degree, 1,000 cc. of plasma would perhaps be enough in the first 24 hours to restore his plasma proteins and hematocrit reading to normal.

After arriving at the hospital the immediate treatment of the burned surface is started as soon as the general condition of the patient permits. This constitutes first of all the removal of all foreign material from the wound. If the patient is so unfortunate as to be burned with clothing on the burned surface or oil is present (as it usually is in naval accidents), the amount of pain and work incident to their removal of course will be greatly increased. Salt water is another thing that causes great changes in the burned area—a great deal of edema occurs with crusting due to the hypertonic salt solution which is the ocean.

To remove these contaminants the best of all substances is plain soap and water. Put the patient in a bath of warm water (about 100 F.) in a room preferably at a temperature of 80 F. and closed to prevent all drafts. With adequate masking and gowning of all individuals in the room, the wound area should be washed gently with sterile rubber gloved hands using sterile cotton and plain white soap. If oil is present and difficult to remove, lard, when applied to the surface, will facilitate its removal.

As soon as the superficial material has been removed and the area surrounding the burn adequately cleansed, the patient is removed from his bath and placed on a sterile sheet for debridement of his wounds. The surgeon and his assistant scrub their hands the usual length of time, put on sterile gowns and gloves, their caps and masks already being in place, and carefully debride and irrigate with saline solution the burned area, so as to remove all blebs, all dead skin and any foreign bodies that may have been overlooked in the cleansing operation. The patient then is

prepared for his dressings.

The dressings to be applied must meet certain requirements—namely, they must be relatively easy to apply, not requiring special equipment of any type. The dressings must be nonadherent so that when it is necessary to remove them the least amount of pain to the patient and injury to the new skin will be caused.

Another requirement that the dressing must meet is that it provide an adequate protection. It must be voluminous enough to cover adequately all the involved area. It also should provide a means of removing any serum or plasma that exudes from the burned surface until coagulation by the natural mechanism or adequate pressure from without has brought about the cessation of the so-called "white hemorrhage." Another factor is that it must exert an even and equal pressure over all the burned area in order to keep the granulating surface that is going to develop in cases of third degree burns at an even level which will make it easier successfully to carry out a skin graft.

Another requisite of the dressing is that it provide rest for the injured area. Rest of course is one of the most important factors in securing rapid healing which in turn determines the amount of disability the patient will suffer.

The dressings we have found to be most satisfactory consist of fine mesh gauze saturated with plain petrolatum or with a three per cent xeroform incorporation. This is applied smoothly without overlapping on the burned area and over this a few layers of flat dry gauze. On top of this is placed fluffed dry gauze which allows firm elastic pressure and the absorption of exuding plasma and serum within the first few hours. Over this is placed sterile padding material to protect the wound from outward contamination. Outside of this is placed mechanic's waste which is much better than the sea sponges formerly used because it can be sterilized adequately, and then the wrapping of roller bandage. If the burn involves the trunk or neck, we prefer to use stockinet, because it is elastic and conforms to the body contours more readily. Splints are next applied over this voluminous dressing.

The dressings on these patients are snugged daily, wrapping right over our original dressings to continue the constant and regular pressure which brings about, as mentioned before, the cessation of white hemorrhage and the level growth of granulations. It also aids the venous return and lymphatic flow in the extremities, bringing into play the natural body resources to combat infection.

The splints are kept on the patient's extremities at all times. He is given adequate rest with sedatives as necessary; plasma is administered to keep his plasma proteins at a normal level. Oxygen is administered in case there is impending shock which is not relatively quickly brought under control by the plasma, or in burns about the head, neck, and upper thorax in which the fumes and flames themselves may have been inhaled to such an extent as to result in severe tracheobronchitis or chemical pneumonitis.

The other factors in the care of the patient are more or less routine. Fluids are administered as the patient is able to take them by mouth and he is encouraged to take a high protein, high carbohydrate diet to protect the liver which readily suffers damage in severe burns.

The dressings are not changed, unless it is evident that infection has ensued, for a period of 12 to 14 days. At the end of that time we usually find that all areas of first and second degree are healed and the areas of third degree are starting to separate their eschar. Eschar that is loose can be removed with simple maneuvers without causing bleeding or pain. If there is secondary infection or it is apparent that the eschar is going to be adherent, Dakin's solution mixed with an equal quantity of saline is applied to the wound on fine mesh gauze as the first layer of the voluminous dressings. These latter dressings are changed every 24 to 48 hours in accordance with the rapidity of separation of the eschar or the amount of wound discharge.

When a clean granulating surface is present, xeroform on fine mesh gauze is reapplied to bring about the ingrowth of epithelium from islands that may spring up from the hair follicles or the wound edges.

In the period from 1934 to 1936, Dr. S. Koch and his associates at the Cook County Hospital in the children's surgical ward used tannic acid in the treatment of burns. During this time 395 cases of burns sufficiently severe to warrant hospitalization were treated. Thirty-nine deaths occurred—amounting to a 10 per cent mortality. The following year (1937) the addition of silver nitrate to form more rapidly a tougher eschar was used in an effort to tan the burn area more quickly and perhaps neutralize some of the toxins that are supposed to be formed by the burning. In that year the mortality was reduced to about 7.3 per cent in a series of 82 cases.

Nineteen thirty-nine was the first year the nonadherent type of dressing was used. There were 137 cases with a mortality of 5.8 per cent. Each succeeding year down to 1941 there has been a

progressive lowering of the mortality until it was 2.73 per cent. These are uncorrected figures including all cases admitted to the ward whether late or early, etc.

Many factors may be responsible for this lowering of the mortality. Undoubtedly one of the biggest factors in this last year is the freer use of plasma in combating shock. That it is due to greater experience on the part of the men handling the burns we hardly believe, because our staff is constantly changing every three to six months.

Nineteen deaths in all occurred in 484 cases in which the nonadherent pressure dressings were used. You will note that 10 occurred in the first 24 hours, 2 in the first 48 hours and six in a later period after admission. Three of these latter were severely infected when transferred from other hospitals. This infection was the predominant factor in the exitus in three of the cases; in the others perhaps the failure to use a sufficient amount of plasma, or the location and extent of the burns, or the involvement of the tracheobronchial tree and chemical pneumonitis were the responsible factors.

After complete healing has occurred physical therapy can do a great deal to promote return of function in the injured extremities. Contractures are kept to a minimum by attaining early healing especially with the use of razor grafts of intermediate thickness to the areas of third degree burns.

Orthopedic Surgery Between Two Wars

Ames A. Dickson, M. D.

The Orthopaedic Association and also the Orthopedic Section of the American Medical Association were in existence in the United States before the last war, but there was no comparable organization in Great Britain, and Robert Jones and his associates were virtually the only orthopedic surgeons in England who were widely known. The orthopedists had been looked on with disdain by other members of the medical profession here and were called the "strap and buckle" surgeons, while Sir Robert had practically no status at all among certain of his confrères in England. He was derisively called a "bonesetter" despite his great surgical skill and the outstanding results he had achieved in caring for the cripples of Liverpool.

It is difficult to realize that such an attitude could have existed so recently toward the practice of orthopedics. It is hard to tell how long it might have persisted if it had not been for the war. Under serious opposition Robert Jones was entrusted with the establishment of the first military orthopedic service in any country, having two hundred beds at Alder Hey in Liverpool. The results were so striking that within a short period, thirty-three thousand beds were equipped and staffed with trained English and American orthopedic surgeons. As Lord Moynihan stated in the Robert Jones Birthday Volume:

"A few months experience (of the war) showed that a very large proportion of surgical work would fall within the province of orthopedics. At the head of the orthopedic department at the War Office, Robert Jones found his destined place. He became the guide, the counselor, the example to a large band of workers, who quickly assimilated his teaching and were able to practice it on a scale hitherto unimaginable. The genius of Owen Thomas, the skill of Robert Jones, found their highest expression in service to our wounded. The methods of these two previously little known, and rarely practiced, ... now became the heritage and enjoyment of all who cared to seek acquaintance with them."

—*From J.A.M.A.*, Oct. 10, 1942.

Cerebral Palsy or Spastic Paralysis

Phyllis Lundeen

Introduction

The purpose of this paper is to help parents and teachers to understand the children who have spastic paralysis. It was written by a spastic, so that other spastics may have some of the treatment and understanding that has meant so much to her.

The spastics must realize that even though they always will be spastics, they may improve, and that they too may have independent, happy, useful lives. They must be made to feel that they must do it for themselves and that no amount of sitting back and allowing others to help them will be sufficient. They must develop an inner discipline which will compel them to take themselves in hand and which will constantly guide them in the direction of improvement. Parents and teachers who make it easier for spastics to create for themselves such good lives always will be blessed.

Almost everyone has heard of infantile paralysis, but very few have heard of spastic paralysis. In infantile paralysis the muscles are flaccid and limp, while in spastic paralysis they are tense and poorly coordinated. This tenseness and poor coordination is caused by the failure of the muscles to work together. There is a lack of inhibitive power. In the normal person one muscle relaxes while the antagonist contracts, but in the spastic the muscle which is supposed to relax does not and the volley of impulses from the brain, making for contraction, causes jerky movements.

There are two main groups into which the cerebral palsied, as they are sometimes called, may be classified; the true spastic who is more tense, and the spastic athetoid who is more poorly coordinated. These are sometimes called the pyramidal and extrapyramidal types. Many of the cerebral palsied are both, but are generally more of one type than they are of the other.

The following are the symptoms of spastic paralysis, although any one of these symptoms may be absent:

The eyes are sometimes crossed and there may be trouble in focusing them for reading. Often there are excess head movements and drooling. The muscles of the arms and hands of many spastics are very tense and the movements are jerky. The characteristic gait of the spastic is called a "scissors gait", because the knees are pulled closely together by the muscles in the inner side of the leg. There often is a loss of balance and the person frequently falls.

Spastic speech is a disorder in rhythm, but most of the spastics have all three types of speech difficulties: rhythm, voice and articulation. Their breathing during speech often is faulty too.

Within the last two decades medical men and psychologists have made a discovery which changed the whole outlook for the spastic. About the middle of the nineteenth century an English physician, Doctor Little, tied spastic paralysis so closely to feeblemindedness that it has taken almost a century to untie it. Because Doctor Little was the first to describe spastic paralysis, it often is called Little's Disease. The spastics themselves have done much to remedy the situation, but the change is very slow. Even now there are some physicians who consider the spastics hopeless, because they think of them as having low intelligence. The spastics' physical appearance is against them. They may drool and look very much like idiots and yet be bright mentally. Recent research has found that only about thirty per cent are feebleminded and that in the spastic, as in the normal person, the intelligence varies from idiocy to genius. For the spastics all mental tests are unfair and should be used only in determining the treatment and not as a prediction of their mental ability.

The personality of the cerebral palsied often is crippled too, not because of the organic injury, however, but because of self-pity, brooding, shame and fear brought about through mistreatment. These are to be guarded against, for they make the organic injury seem worse than it really is and the treatment is more difficult.

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Until recently the only cause given for the disorder was injury to the brain at birth, but later research has proved that it occasionally may be caused by prenatal disturbances. Then, too, it may be caused by such diseases as jaundice, scarlet fever, meningitis or whooping cough in early childhood, or by a fall or a blow on the head.

Good mental health is important to the normal child, but to the cerebral palsied it is even more important, for without it speech training and physical therapy are almost useless. Doctor Carlson, himself a spastic, says that there has been too much emphasis placed on physical therapy and not enough on psychotherapy. The so-called normal person has mental conflicts, fears, et cetera, and yet he is able to walk, talk, eat and write without being stared at, laughed at or pitied. It is a mystery to some who have worked with the cerebral palsied that they are as well-adjusted as they are.

Shame is hard to break down, but when a spastic is ashamed of his eyes because they are crossed or of his hands because they are obstinate and seem to refuse to do the things that he wishes they would, the thing that should be done is to have a talk with his parents, teachers and playfellows. Have them realize that it is harmful to the child for them to react emotionally, by laughing, pitying, not looking at him or by helping him in anything and everything he attempts to do. If the older child seems to be more ashamed of his hands than anything else, have him put them out in front of him and look at them as if they did not belong to him. Have him look at them in a mirror. Later find out a few instances that brought on the same shame and re-enact the scenes in a humorous way. If he is ashamed of being a spastic, have him read or tell him what it is, what the cause of spastic paralysis is and all about it. Make him see that there is nothing to be ashamed of. Since he is a spastic and must be one all his life he should accept it for what it is—a handicap indeed, but not an unsurmountable obstacle to a good and useful life. He must be shown by the parents' attitude that life can be pleasant and worthwhile even if the limbs refuse to work gracefully. Above all he must see the uselessness of adding an emotional handicap to the physical one. One handicap is enough.

The spastic child usually has many fears and as he becomes an adolescent the fears seem to grow up too and more fears are added until he seems to be afraid of almost everything. He may have specific fears in which he is afraid of going down one particular flight of steps or he may have general fears in which he is afraid of all steps. Many times his fears arise from the fears of others for him. For example, a mother refuses to allow her spastic child to go down the stairs alone, or the father adds fear to fear by threatening to punish the child if he should fall down again. It is easier to prevent these fears from occurring than to eliminate them. In the prevention of the fear of steps it is necessary to show him how to walk down the steps and tell him it is best that he use the railing where there is one, while in helping the child to eliminate the fear one must not only show him how to walk down the steps, but have him do it many times with someone standing close at first and gradually increasing the distance from him until he can walk down the steps alone. Make sure that he hangs on to the railing wherever possible, because one fall may make that fear much worse than it ever was before.

Self-pity and brooding because he is a spastic does not help matters any, but only tends to make the situation worse. Therefore a number of mental hygiene chats are necessary, but simply telling him that he is not to feel sorry for himself is not going to help at all. The best way to have any person stop brooding is to give him a feeling of personal worth. Have him keep busy with something he can do and succeed at, but it must arouse his interest; it must not only keep his hands busy but his mind as well.

The cerebral palsied should go into all kinds of situations trying to be as controlled as possible. For example, if he dislikes eating out he should eat out often and try to control his movements. Have him say to himself that he is not going to be bothered by what others may think of him. It will take time before he will be able to do it, but gradually he will gain more control until he is able to bring a cup to his mouth without spilling the contents even though people are watching him. He must learn to build a wall against disturbing influences.

The spastic often has all three types of speech defects: articulation, voice and rhythm. The articulation disorder may be caused by an inability to make quick transitions from one sound to another or an inability to say the sound at all because of poorly coordinated tongue and lip muscles. The disorder of the voice, which is usually too high-pitched or shaky, is caused by an excess tension of the vocal cords. The rhythm defect makes for breaks in speech and also is caused by a lack of coordination. The spastic may have trouble in breathing, especially during speech.

Good breathing habits are essential to good speech. In normal breathing the chest and abdomen expand when a breath is taken and when speaking the chest and abdomen gradually contract. However, in the spastic's speech the chest often expands and rises while the abdomen is excessively contracted, causing breathiness and tension. In helping the spastic to breathe correctly, have him memorize a paragraph and say it over many times with one hand on his chest and the other on his abdomen. Both hands should rise and fall together. Make sure that he is able to say the memorized paragraph perfectly many times before going on to reading material. After he is able to read any page perfectly, have him tell what he has read from a page or two and finally have him give short impromptu speeches. A mouth organ, bubble pipe, or drinking through a straw also may be used to gain better breath control.

For the more severely paralyzed spastic who has not been able to speak because of excess tension and poor coordination, it has been found necessary to start with passive movements, such as taking his lower jaw and gently moving it up and down and to the sides. This may be difficult at first, but as he relaxes it will be easier. With a sterile towel pull his tongue in and out and to the sides. These exercises should be done when the child is lying on a bed or table or sitting in an easy chair and is as relaxed as possible. After the passive movements can be made fairly well, exercises of the lips, jaw and tongue may be given.

Such exercises may be done by the less severely spastic individual. Articulation exercises should be built on the part emerging from the whole. For example, have him move the tongue, within his mouth at first and later outside the mouth, from side to side with the movement of the whole body. As he improves have him move only his head and finally only his tongue. This exercise should be done in a rhythmical way to the rhythm of the metronome or to some slow music. Another tongue exercise would be to have the child think of his tongue as a boy called Jimmy and his mouth as Jimmy's house. Tell him to make Jimmy come out and go around his house. A jaw exercise, for example, would be to have the child move his lower jaw up and down, moving his body and head also, have him move it to the sides with the movement of his body. Both of these should be carried on to the tune of music or the metronome. The following lip exercises may be used: have the child pucker his lips, moving his body and head forward, then pull the corners of his mouth or lips back as far as possible, moving his body back to music or to the metronome; have him move his lips to the sides much the same as in the last exercise. The easier sounds, such as "p" and "b", should be worked with first. The voiceless sounds should be taught before the voiced sounds are taught. The person who is helping the child should say the sound over many times; give the sound a name; for example, the "p" sound may be called the "popping" sound or the "puffing" sound. Games may be devised to make the drill more interesting. After much ear-training, the child should be allowed to make the new sound in isolation, then in nonsense words and finally in meaningful words. When he is able to say all the sounds, he should be encouraged to exaggerate the enunciation and pronunciation of the words.

The spastic's voice usually is pitched too high, so in order to help him lower it he must be made aware of it and have at least ten minutes a day in which he makes an effort to talk in a lower voice. Some exercises which may help for this are talking in as relaxed a manner as possible or talking on a sigh or a laugh. Another exercise which may be helpful is to have the child talk for five minutes or so with a down inflection on each word. His voice may be shaky and the former exercises are a help for this as well.

All spastics have breaks in the rhythm of their speech. They sometimes start to force when they have these breaks. If they would not force or stop in the middle of the word and repeat it, their speech would sound much more normal. Some spastics have preformations on almost every word and they should learn to make the speech attempt as soon as they put their mouth in position for the word. Writing the first letter of each word as they speak the word and metronome reading has helped in many cases in eliminating preformations. The vowels in the speech of the spastics often are broken and in order to remedy this it is necessary to have them practice singing vowels, such as "ah" and "oo" without having a break between them or have them hum a tune without a break between the pitch levels. Accompany the production of the speech sounds with the rhythmic activity in order to lose the speech inactivity.

Surgical treatment has been used for the spastic, but physicians now know that physical therapy is more important and they operate very seldom.

In helping the child to learn to walk, kiddie cars and tricycles often have been an aid. Using an inclined plane with handrails and a mirror

at the end of the walking surface is an excellent device for teaching the child to walk. Roller skates are being used, too, because they require the use of large movements. They should be outgrown as soon as the child's coordinations are such that they can be. After he is able to walk a little, heel-to-toe patterns should be stressed.

The spastic's posture frequently is poor. He should be taught to sit as straight as possible with his hands in his lap and to stand erect with with one shoulder as high as the other, with both feet flat on the floor and not on his toes as is characteristic of the spastic. A large mirror will aid him in seeing what he does incorrectly. A person may show him what he does not do in the right way, but nagging does not help the situation and really makes it worse. It is best to have one particular time of the day in which to help him and then not say anything about it afterward.

In helping the spastic move his arms, hands and fingers correctly it is necessary to have him make the large movements first. When he is able to make the large movements almost perfectly, he may be allowed to work the small movements in with the larger ones. The child should first be taught to write as large as possible on the blackboard, gradually working for smaller letters. After that has been done it may be wise to give him unlined paper in order that he may be able to write as large as he wishes. Rhythmic movements also help the spastic; for example, beating a toy drum to the tune of some music or writing to the tune of some music. The latter often has helped him to improve his writing. Playing with blocks, pegs, balls, puppets, clay, et cetera, may help the spastic child's hands to become better coordinated.

If water therapy is used, it is necessary that the water in the pool be 98 to 100 F. When the water is this temperature, the child should be taught to float, but care should be taken so as not to allow fear to creep in, for with fear comes tension and no one can float when he is tense. Another thing that is well to remember is to work with the spastic when there are no other persons in the pool. A great many other children splashing will take his mind off what he is trying to do.

In working with spastics one should avoid tiring them, for in so doing they become more tense and the purpose is defeated.

Treatment of the spastic should be begun as early as possible, because the muscular habits are not set as much as they will be later in life and better mental hygiene can be obtained.

A SAMPLE OF A DAY'S ACTIVITY FOR A NINE YEAR OLD SPASTIC CHILD

When the mother or nurse awakens the child in the morning, she should offer some suggestions as to what the child is to do that day. She should not allow him to jump up quickly, but should have him lie still while the suggestions are being made. The child should be awakened early enough so as to give him plenty of time to do what he has to do without hurrying. He should be encouraged to do what he can for himself while dressing, even if it takes him an hour to dress. Each week the child should work on something that he cannot do very well; he should be shown how it is done and allowed to try it by himself. If it is obviously too difficult for him, tell him he can work on that some other time. These suggestions may be followed at bed time.

At breakfast time allow the child to feed himself, if possible, at first with a spoon and after he is able to manipulate it fairly well, have him use a fork. Let him bring a glass to his mouth without assisting him. Allow him to spread his bread and cut the things he has to cut with his knife. He may spill often, but if those who are eating with him will not seem anxious about the table cloth or dishes, the child will get along much better. If he does spill, say something like this, "That was poor coordination, wasn't it? Better luck next time." The spastic is worse in the morning, so do not allow him to become discouraged about not having better control at breakfast. These suggestions may be carried out during the other two meals.

Before he leaves for school in the morning, have him read over one of his lessons with a metronome or some rhythmical device. During the morning the teacher should ask the child to clean the blackboard or water the plants. Have him do something no matter how small while the other children are doing their housekeeping duties in the classroom. Whenever he raises his hand have him raise the one which is the most crippled. The purpose of this is to make the child less sensitive to emotion about his hands.

If he comes home at noon, have him rest for at least fifteen minutes and if he does not come home, there is usually a cot in the teacher's restroom where he may rest. Plenty of time should be taken for him to eat his lunch and after lunch parents and teachers should encourage him to play and do the things that other children are doing. Never should he be allowed to sit and watch other children play. If he is not able to do anything else, get someone to play checkers,

bean bag, shuffle board, horse shoes, et cetera, with him. But if he can run around, even though he does fall often, let him run. It may be necessary to put bandages on his knees and elbows before he goes out to keep them from being perpetually skinned, but it will help to keep him from becoming a spoiled child and will make him easier to live with.

In the afternoon the child should be given at least one chance to recite; not just a "yes" or "no" question, but one which will give him a chance to organize his thoughts and answer. Sometime during the afternoon have him drop something on the floor and pick it up without becoming embarrassed.

When school is out in the afternoon, he should rest about fifteen minutes. After he is quite relaxed have him sing on two vowels, keeping it continuous without a break between them. Have him try it about twenty times. It may be months before he is able to do it, so a variation of it may be necessary, such as humming a tune without a break between pitch levels.

While he is still lying on the cot, work with his hands and feet in a passive manner, at first, and after he has loosened up and his hands and feet can be moved without too much resistance, have him move them himself with the metronome. Another exercise that should be used is having him move his fingers and hand with the movement of his whole arm. Then, too, put a little pressure on his hand as he tries to raise it. These exercises will take about half an hour.

If he is able to walk, have him walk before a large mirror. Show him what he does in the wrong way and as he walks back and forth have him try to correct this. Remember to have him walk erect, head up, chin in, chest out, and "tummy" in, swinging his arms but keeping them near his side, knees not touching, with a heel-toe foot position. A phonograph or the radio playing martial music or a drum may make this exercise more interesting to the child. Work with this from ten to twenty minutes. If, however, the child cannot walk at all, hold him up against the wall and have him stand as straight as possible. Have him move his feet up and down. After this he should rest for five minutes. If there is an inclining board with a railing on either side, help him to walk down this for about five or ten minutes and another five-minute rest period may follow. Allow him to do as he wishes until dinner.

For a half hour after dinner have him do some tongue, lip and jaw exercises, such as putting his tongue out and in while he is moving his head back and forth, or have him move his tongue from side to side with a similar movement of his head. The jaw and lip exercises are much the same as those of the tongue. Games should be devised wherever possible; for example, the family may choose a leader who should stand in the middle of the room and say, "left", "right", "middle", and "around," and so forth. All those who are playing have to move their tongues where the leader says and if they miss, they must be the leader.

Have the child memorize a short passage and say it over ten times with one hand on his chest and the other on his stomach. As he takes a new breath have the two hands move up together, and as he speaks have them go down together gradually. Have him keep speaking until they are way down, for if he stops speaking after half his breath is gone and breathes out, he wastes his breath.

When there is a blackboard around the house, have the child practice large swinging movements and work into the letters from them. This should take about ten minutes.

Have him read over his lesson for the next day and after he has finished, have him tell his parents what he has read or ask him to tell something that happened in school.

If there is a pool with regulated water temperature in the home, have the child practice floating for about ten minutes a day, and where there is no pool, fill the bathtub with water at about body temperature and have the child try to make his arms and legs float. After this the child should be put to bed in a quiet, warm, well-ventilated room. If possible he should sleep in a bed of his own.

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Schools Approved for Training Physical Therapy Technicians

By the Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Requirements *	Duration		Time of Admission		Tuition**	Certificate Diploma Degree **
				Regular Course	Emergency Course	Regular Course	Emergency Course		
Children's Hospital, Los Angeles	Steele F. Stewart, M.D.	Miss Lily H. Graham	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	12 mos.	6 mos.[1]	Feb. and Sept.	Feb. and Sept.	$200 R $200 E	Diploma R Certificate E
Stanford University, Stanford University, Calif.	William H. Northway, M. D.	Miss Catherine Worthingham, A.B., M.A.	(a) R. N. (b) Phys. educ. major (c) 3 yrs. coll.	12 mos.[1]	7 mos.[1]	Jan. and June	Jan., Mar. June and Sept.	$429 R $286 E	Certificate or B. A.
Walter Reed General Hospital, Washington, D. C.	B. A. Strickland, Jr. Capt., M. C.	Miss Emma E. Vogel	Phys. educ. major	.....	6 mos.	.....	Quarterly	None	Certificate
Northwestern University Medical School, Chicago	John S. Coulter, M. D.	Miss Gertrude Beard, R.N.	(a) R. N. (b) Phys. educ. major (3) 3 yrs. coll.	9 mos.[1]	6 mos.[1]	Oct.	Jan. and July	$200 R $200 E	Certificate
Bouve'-Boston School of Physical Education, Boston	Arthur L. Watkins, M.D.	Miss Constance K. Greene	High sch. grad.	3 yrs. 4 yrs.[2]	6 mos.	Sept.	Aug.	$400 yr.	Diploma or B. S.
Harvard Medical School, Boston	Frank R. Ober, M.D.	Miss Janet B. Merrill	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.[3]	9 mos.	6 mos.[1]	Sept. and March	Sept. and March	$200 R $200 E	Certificate
Boston University, Sargent College of Physical Education, Cambridge, Mass.	Louis Howard, M.D.	Mrs. Lucille W. Fuller	2 yrs. coll.	2 yrs.	[4]	Oct.	[4]	$547	Certificate and B S.
University of Minnesota, Minneapolis	M. E. Knapp, M.D.	Miss Sara E. Kollman, R.N.	(a) R. N. (b) Phys. educ. major (c) Medical technology grad. with B.S. degree	12 mos.[1]	.....	June and Sept.	.....	Univ. fees	Certificate
Mayo Clinic, Rochester, Minn.	Frank H. Krusen, M.D.	Mr. Carl O. Moe, R.N.	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	.....	6 mos.[1]	.....	Jan. and July	None	Certificate
St. Louis University School of Nursing, St. Louis	Alexander J. Kotkis, M.D.	Sister M. Consella, R.N.	High sch. grad.	4 yrs.[1]	.....	Jan. and Sept.	.....	$250 yr.	B. S.
University of Buffalo School of Nursing, Buffalo	George G. Martin, M.D.	Miss Edna Beaver, R.N.	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	12 mos.[1]	6 mos.[1]	Feb. and Sept.	Feb. and Sept.	$425 R $375 E	Certificate
Hospital for Special Surgery, New York City	Kristian G. Hansson, M.D.	Miss Ethel M. Willmer	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	9 mos.[1]	6 mos.[1]	Sept.	Sept.	$300 R $200 E	Diploma
D. T. Watson School of Physiotherapy, Leetsdale, Pa.	Jessie Wright, M.D.	Miss Dorothy Lovdahl	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.[5]	2 yrs.[1]	6 mos.[1]	Sept.	Jan. and July	None R $200 E	Diploma R Certificate E
Richmond Professional Institute of the College of William and Mary, Richmond, Va.	Thomas W. Wheeldon, M.D.	Miss Alice Jones	(a) R. N. (b) Phys. educ. major (c) Coll. grad. (d) High sch. grad.	9 mos. 4 yrs.	....	Feb. and Sept.	.....	Coll. fees	Certificate or B. S.
University of Wisconsin Medical School, Madison	Ernst A. Pohle, M.D.	Miss Margaret Kohli, B.S.	(a) R. N. (b) Phys. educ. major	12 mos.[1]	6 mos.	Feb. and Sept.	Feb. and Sept.	Univ. fees	Certificate

Name and Location of School	Medical Director	Technical Director	Entrance Requirements	Duration Regular	Duration Emerg.	Time of Admission	Tuition	Certificate Diploma Degree
College of Medical Evangelists, Los Angeles	Fred B. Moore, M.D.	***	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	12 mos.	.....	Jan. and July	$ 225	Certificate
Barnes Hospital, St. Louis	Frank H. Ewhardt, M.D.	Mrs. Lucile B. Fitts	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	9 mos.	.....	Feb. and Oct.	$200	Certificate
New York University, New York City	William Bierman, M.D.	G. G. Deaver, M. D.	(a) R. N. (b) Phys. educ. (c) 2 yrs. coll. major	9 mos.	.....	Sept.	$396	Certificate, B. S. or M. S.
University of California Hospital, San Francisco	Frances Baker, M. D.	Mrs. Marjorie Wagner	(a) R. N. (b) Phys. educ. major (c) Coll. grad.	12 mos.	.....	Oct.	$150	Certificate
University of Iowa, College of Medicine, Iowa City	W. D. Paul, M. D.	Mrs. Olive Farr	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	.....	6 mos.	Mar. and Sept.	None	Certificate
Cleveland Clinic Foundation Hospital, Cleveland, Ohio	Walter J. Zeiter, M. D.	Anna Wetterhuus, R.N.	(a) R. N. (b) Phys. educ. major (c) 2 yrs. coll.	9 mos.	.....	July	None	Certificate

* Courses are so arranged that any of the entrance requirements (a, b, c or d) will qualify students for training.

** R = Regular course; E = Emergency course.

1. Male students are admitted.
2. Four year course leads to B. S. degree from Simmons College.
3. This group admitted to emergency course only.
4. Emergency course offered in cooperation with Harvard Medical School.
5. Only those with three years of college are admitted to emergency course.

***We do not have at present the name of the technical director for this physical therapy school.

Reprints

"Physical Therapy as a Vocation"

"Approved Schools of Physical Therapy"

"Training of Physical Therapy Technicians"

The Constitution of the American Physiotherapy Association

Code of Ethics and Discipline of the American Physiotherapy Association

The Blue Booklet, "The American Physiotherapy Association is Organized to Serve"

"What Does a Physical Therapy Department Contribute to a Hospital?"

"A Study of Physical Therapy Costs in Industrial Medicine"

"Role of the Physical Therapist in the Care of the Crippled Child"

"Ethics and the Physical Therapy Technician"

"Bulletin of Information, American Physiotherapy Association"

List of National and Chapter Officers of the American Physiotherapy Association

To obtain any or all of these reprints, address Miss Hazel E. Furscott, Chairman, Relations Committee, 219 Fitzhugh Building, San Francisco, California. Single reprints, 10c; complete set of reprints, 25c. Free to nonmembers.

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As we enter our second year of the war we are increasingly aware of our responsibility to our country and to our profession. We as an Association have tried to do our utmost to meet the demands of the army by training technicians. New schools have been organized and others have doubled and trebled their enrollment. Final plans for volunteer physical therapy assistants are being completed, and we have cooperated with the Red Cross in recruiting aides for the army.

In the closing days of the 76th Congress the bill giving military status to physical therapy technicians was passed, culminating the work and hopes of "aides" for the last twenty years.

There will be a need for more physical therapy aides, and as more technicians enlist, it means that chapter membership will be falling off. In one state there are now but six members. However, in that state there is a large army fort. At this fort there are undoubtedly aides that are far from their home chapter who would welcome the opportunity of meeting with their colleagues who are not in service. It seems to us that the chapters should keep in contact with the base hospitals in their locality in order that these girls may not lose contact with the Association, and also that the chapter members, as well as others, may profit by the experiences of those serving with the army.

It has come to our attention that in one state the technicians in the army hospital contacted the local chapter and asked to be notified of meetings. This was not done, and these girls therefore felt that chapter membership was of no value to them and applied for membership-at-large. I am sure that all civilian members wish to do everything possible for those in the service, and to make available to those girls not only professional contact but also to make it possible for them to enjoy their new surroundings. In still another state the chapter did notify the aides of their meetings and was anxious to have them participate, but the aides did not or were not able to attend. This may have been due to transportation difficulties or to the fact that some of the staff were not members of the Association and therefore not interested.

However, we feel that the chapters should continue to make every effort to contact the girls in service in their community and to include them in all social and professional activities. Good morale is just as important for the technician as it is for the soldier, and it is the least that we can do to make them feel at home in their new surroundings and to keep them in contact with chapter and national affairs.

Military Status in the Army

The bill for military status for physical therapy technicians was passed by the 76th Congress and signed by the President. According to Doctor Magee, Surgeon General of the Army, "no information is available for publication pending approval of changes in Army regulations."

Base Hospital No. 12, Northwestern University Medical School Unit, has landed on foreign soil. The following members of the American Physiotherapy Association are serving with this unit: Helen Maag, Maxine Schuldt, Gisella Wenzler and Alfaretta Wright.

New Jersey Chapter

Grace Ward has reported to Northhampton as a Lt. (j.g.) in the WAVES. Girls doing physical therapy in the Army, and their stations, are as follows: Olive Allen, Camp Blanding, Fla.; Norma Siether, Fort Sam Houston, Tex., and Elizabeth Schaack, Fitzsimmons General Hospital, Denver, Colo.

Change in Price of Emblems

Because of the increased cost in manufacturing, the price of the official emblems of the American Physiotherapy Association has been raised from 15c to 25c.

Correction Regarding Scholarships

The scholarships offered from the grant from the National Foundation for Infantile Paralysis are not for a specific amount but rather are based on the needs and qualifications of applicants.

1943 Conference

The question of holding a 1943 conference is still under discussion. The Executive Committee would appreciate expressions of opinions from the chapters and members on this important problem.

The suggestions to date are:

(1) that a short, intense conference be built around "Rehabilitation" and that as many phases as possible of this timely subject be discussed.

(2) that the conference be held in a locality which would be most readily available to the greatest number of members.

Send us your suggestions—NOW!

Scholarship Committee

Mrs. Mary Deatherage replaces Miss Lucile Daniels on the Scholarship Committee. Because of the policy that persons affiliated with physical therapy schools shall not serve on this committee, it was necessary to appoint a member to serve in Miss Daniel's capacity as she is now on the Stanford University Staff teaching the Kenny technic for the treatment of infantile paralysis. Others comprising this committee are: Marguerite Irvine, Chairman; Cecelia Leverone, Laura Borwell, and Mrs. Frieda Gassin.

At its meeting, November 8, 1942, the Council on Medical Education and Hospitals of the American Medical Association recommended that the Essentials of an Acceptable School for Physical Therapy Technicians be modified to read as follows:

"V. Requirements for Admission

"13. Candidates for admission should be able to satisfy one of the following requirements:

"(a) Graduation from an accredited school of nursing.

"(b) Graduation from an accredited school of physical education.

"(c) Two years of approved college training including satisfactory courses in biology and other sciences.

"Courses in general physics and chemistry as well as biology are highly recommended for all who seek to enter training in physical therapy."

The American Physiotherapy Association welcomes Dr. Frances A. Hellebrandt as an Associate Member! She was accepted by unanimous approval of the Executive Committee on the invitation of the Wisconsin Chapter.

Dear Fellow Members:

After Pearl Harbor I felt a total urge to get into the Army again; also that Emergency Hospital could use my physical therapy equipment in starting a real PT department, giving me enough in return to get started into the Army. It was not too easy to persuade the Surgeon General's Office that I was still young enough for the strenuous job ahead of me, but they agreed to try it out when they found I really had Civil Service Status and would get rid of my business of medically referred patients, also my home, and that I was ready to go way off for the duration.

So "Johnnie" and "Cubby", the pup, and I set out in the old secondhand Ford, tucking in all the things we might need in a defense house unit, in case the furniture never came. We certainly looked like "The Covered Wagon" except we did try to pack out of sight as much as possible. We had no spare and four very thin tires, came 650 miles on 15 gallons of gas, on my X card, which was promptly exchanged for an A card on arrival at camp. So we haven't seen as much of the country around as I had planned.

Mrs. Baum had pioneered and established an excellent PT department. She already had her overseas orders. I had a very pleasant impression of the PT department. The personnel consisted of two newly trained physical therapists, five corps men, since promoted to technical sergeants, and myself. Now we have five more men in training, and one technician has left to get married. We are really busy, with 100 to 150 patients a day as a normal average. Mrs. Baum had trained the corps men to take care of all cleaning and the linen count, bakings and timings of patients, ultraviolet treatments, and they really can run those whirlpools, and have learned since to give simple massage, as of the back and extremities. This has been absolutely necessary and such a help, in order to cover such a bulk of work, and with the shortage of physical therapy personnel.

We now have the entire ward for physical therapy, which is a large one. There is an office, a waiting room, a woman personnel treatment room, a linen count room, a shower-sitz bath room, an ultraviolet treatment room where we have air-cooled and water-cooled lamps, a supply room, two personnel dressing rooms. On each side of the central hall are two physical therapy treatment rooms holding five massage tables each, also whirlpools, pavex, and cabinet sweat bath. The very large lower room has twelve massage tables, screened off posture mirrors, large side

porch. At the other end is a patients' reading room, furnished by the Red Cross for us, which is a lovely sun room. There are plenty of windows and good lighting everywhere. Enough plugs, plenty of cradle bakers and thermolites.

We have a Medical Officer, a Major, also in charge of the very busy X-ray department, who is really intelligent in his understanding of physical therapy. He visits the department for an hour daily, often twice a day. He signs all papers, works out our physical therapy problems, with the powers that be for us, examines all new patients, ordering their treatments, and stopping them from physical therapy when they have had enough. There is no evidence here of indefinite physical therapy treatments, as we have a constant and heavy turnover.

One of the problems we have taken care of especially is the foot problem so prevalent in the army, and so familiar to all physical therapists. We had six duplicates made of the corrective foot board, and we really go to town using them. The patients like them much better than the marble exercises, and they are much more comprehensive. The foot boards, massage plinths, and corrective exercise equipment are all made in the hospital carpenter shop, under the supervision of our Commanding Officer, who is very much interested in corrective work.

The hospital personnel are welcomed as patients, especially the medical personnel and the nurses, otherwise how could they learn what the physical therapy department is doing. So we pioneer on, even in this new army. We are very busy and happy in the army, and who could ask for more.

I would like to suggest that our National Physical Therapy Educational Committee help us with our army job, by furnishing each army post with two current copies of the P.T. Review, one to the Commanding Officer, for the Medical Personnel, and one to the Chief Nurse for the use of the Nurses, as the best possible help to us for the duration.

Cordially yours,
MARY LEE CASTLEMAN
Station Hospital, Pine Camp, New York.

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ABSTRACTS

John S. Coulter, M.D.

Physical Therapy in Arthritis

Walter M. Solomon, M.D., Captain, Medical Corps, United States Army, Cleveland, Ohio. In Arch. P. T., 23:8:457, August 1942.

According to the author the term chronic arthritis in this article will be used to include only rheumatoid arthritis and osteoarthritis. Treatment is entirely symptomatic because the causation is unknown and specific therapy therefore is not available. For the relief of pain and stiffness, for the maintenance of muscle tone and the prevention of muscle atrophy, for the preservation of joint motion and the avoidance of muscle contractures and for the rehabilitation of the arthritic cripple, physical therapy is a much neglected field which deserves further attention from specialist and general practitioner.

Heat

Moderate heat dilates the capillaries, increases the circulation and accelerates tissue metabolism. The number of functioning capillaries in rheumatoid arthritis is markedly increased by local heat. Local heat secures mild analgesia in painful joints and makes the cold clammy skin of the patient with rheumatoid arthritis warm and red.

Local Heat

Solomon states that when a heat lamp is used in the treatment of joints, an exposure of thirty to forty-five minutes two or three times a day is better than too long an exposure at one time.

General Heat

Heat in its various forms is applied to the entire body in an effort to stimulate general metabolism and to increase circulation throughout the whole body. No attempt is made to elevate the body temperature.

Exercise

According to Solomon exercise is an effective measure but must be used with care. It requires patience, tact and an understanding of the disease process which is present in arthritis. The use of exercise differs for the patient with rheumatoid arthritis and the patient with osteoarthritis.

Rheumatoid Arthritis: Exercise and Care.—In this type, exercise is essential to prevent deformity and ankylosis of the joints and muscle atrophy. For an acutely swollen, painful joint both active and passive exercises are properly delayed, but to wait too long in starting them will favor the development of permanent disability. It is difficult to decide when to begin. However, it is well to have the patient attempt active exercises, that he can do himself, as soon as possible. If they cause undue pain, they must be stopped. Many patients will wiggle a joint twenty or thirty times, but this not only fails to maintain or improve the range of motion but irritates the joint.

Fever Therapy

During the past ten years various physical means of elevating the bodily temperature have been developed, for example, air-conditioned cabinets, and short wave diathermy. These are relatively safe for producing the desired elevation of temperature, which may be maintained for a prescribed period.

Artificial fever treatments should be given only in a hospital and by adequately trained personnel of physicians and nurses.

The Role of Orthopedic Appliances in the Treatment of Infantile Paralysis

Henry H. Jordan, M.D., New York City. In N. Y. State J. Med., 42:17:1651, September 1, 1942.

The overemphasis frequently, and in our opinion unnecessarily, placed on the economical phase leads to the question whether or not standardization of braces for infantile paralysis is desirable.

The question may be answered in the affirmative as far as standard splints for use in the acute stage of the disease are concerned. The question must be answered emphatically in the negative, however, for the orthopedic appliances to be used as temporary or permanent braces in the chronic stage.

In order to substitute efficiently for loss of physiologic function in posture and locomotion, the brace must become a part of the individual's body. Maximum efficiency is possible only with a brace that is designed, constructed, and fitted for the particular requirements of each individual patient. Complete adaptation of the patient to his brace determines its success, with resulting economy. Mass production cannot possibly achieve the desired result, regardless of the highest standard of our industry in general. Strict individualization is even more important than the most skillful workmanship and the finest materials.

Standardization has its place in the bracemaker's training and in the procedure in the workshop, but it is definitely out of place in the prescription and fitting of the individual permanent brace.

Psychosomatic Aspects of Hypertension

Edward Weiss, M. D., Philadelphia. In J. A. M. A., 120:14:1081, December 5, 1942.

It is generally admitted that psychic factors play some part in essential hypertension. Thus, it always is emphasized that we must allow for the emotional element in individual blood pressure readings. It also is well known that rest and reassurance play a large part in the medical management of hypertensive patients, both in relief of symptoms and in reduction of the blood pressure level. Emotional stress at times seems to procede the onset of hypertension, and anxiety bears a close relationship to the aggravation of existing symptoms in hypertension.

Two psychic tendencies seem to stand in close relationship to hypertension: anxiety and rage. It has long been known that anger is an emotion connected with high blood pressure.

The psychosomatic concept of pathogenesis and clinical picture must impress us with the necessity for the total evaluation of the patient with hypertension. This requires more than lip service to the concept of the organism as a whole. Incapacity often is out of proportion to the disease and therefore it will be found important in a great many patients to reeducate them along the lines of "carrying on" rather than to urge rest and more rest.

To advise the individual involved in mental conflict not to worry is of little value, especially when, as is so often the case, no concerted effort is made to find out what is disturbing him. Too often the physician is satisfied that there are no problems disturbing the patient after he has inquired, "Are you worried about anything?" and has received a negative reply. There is only one approach that has any merit; that is, to encourage the patient to talk about himself as a person rather than as a medical case.

There is no objection to the effort to lower blood pressure as long as this does not constitute the sole approach to the problem of high blood pressure. We are too much concerned with physical measurements in hypertension. We have been too little concerned with the emotional life, which may hold the key to the satisfactory management of the hypertensive patient.

Pityriasis Rosea: Treatment With Baths in Bichloride of Mercury Solution

Richard L. Sutton, Jr., M. D., Kansas City, Missouri, Assistant Professor of Dermatology, University of Kansas. In Southern Med. J., 35:6:597, June 1942.

Practically routine treatment nowadays is irradiation with ultraviolet light, and this is effective. If the skin is caused to peel, the disease goes with the scales. Some blonds, myself among them, would prefer to suffer the disease rather than its treatment by sunburning.

I write for my patients with pityriasis rosea a prescription calling for one ounce of mercuric chloride in sixteen ounces of water in a graduated bottle, labelled "POISON—2 ounces to 15 gallons of cool water for 10 minute baths twice a day." Carefully I explain that the bottle contains enough poison to kill a hundred men if taken internally. I often have to reassure a pharmacist that I really intend a whole ounce of bichloride. The patient is requested to measure fifteen gallons into his tub, using an ordinary bucket which holds three gallons, or using a quart milk bottle emptied four times into a pail to measure one gallon. After the first bath, water may be drawn to the same level without formal measurement. The bath is to be lukewarm. No soap is used with the medical bath, but soap may be used separately as desired. The patient is to immerse himself in this dilution, which is about 1:15,000, twice a day for a period of 10 minutes by the clock. Stronger concentrations are irritating.

Fatigue, Rest and Exercise

Trevor Own, M.B. (Tor.), F.R.C.P. (Lond. & C), Toronto. In Canad. Med. Assoc. J., 47:1:41, July 1942.

Rest and Exercise

Rest from athletic fatigue means the total inactivity of the body and mind for a period which has definite limits. In organic fatigue, namely, that due to toxic states due to infection, degeneration, or new growth, or to poisoning from endogenous sources, rest is also that of an inactivity of the part and of the whole patient until the source of the intoxication are repaired and the metabolism of the cells is restored to normal. As soon as the toxins are removed or prevented from forming, the convalescent state begins. This rehabilitation period, called the convalescent state, is a period of change and requires a nice adjustment between rest and increasing exercise of the part and the whole of the patient. The fact that the whole individual is taking part in the convalescence often is overlooked. Graduated use of the various faculties and physical properties of that individual have to be used in greater frequency and in increasing difficulty. This is analogous to the early part of an athlete's training. During the convalescent stage from infection or other toxemias, many of the psychoneurotic states originate in healthy people. The previous toxic state has resulted in a disintegration of function of the various systems and of the cells in each system and, following the removal of that toxemia, this functional fatigue remains. The restoration of this liability to functional fatigue may well be met with the ordinary natural tendency of the individual to recover spontaneously. But, if the period of previous toxemia has been prolonged, even those who have strong autonomic nervous systems and constitutional organization, as it is called, may yet require careful coaching in the reeducation or exercise process to avoid the habitual functional fatigue symptoms which are necessarily and normally present at the beginning of the convalescent stage. It can thus be seen, too, that in long continued, chronic, organic disease and in suitable personalities, functional fatigue symptoms overtake and overshadow finally the organic symptoms. Frequently, however, the distinction between the organic symptoms and the functional fatigue symptoms is not clearly distinguished by those who come in contact with the patient. Therefore, there is a possibility that the whole complex clinical picture becomes a mixture of functional, that is to say secondary psychoneurotic, symptoms combined with the organic symptoms and the latter may fade in reality to the vanishing point. The onus having started with the organic disease, symptoms may still be thought to be treatable on the basis of the original organic lesion, but specific treatment directed towards the organic lesion, of course, will not have any effect on the secondary and now more urgent and possibly overwhelming symptoms of functional nervous disturbance.

The word "rest" is used rightly when applied to the fatigue of organic disease. Inactivity, however, is not restful for the organization that is suffering from functional fatigue, and becomes but an opportunity for deterioration. In functional nervous disorders, rest is only obtained by using all parts, including the mind and nervous system of the organism in the way that they were supposed to be used, beginning with a small amount and increasing the difficulty and the duration until a normal level of usage is arrived at. Together with this, frequent changes in the kind of energy production is the only way of producing a restful effect. Anxiety or fear and boredom(monotony) are the greatest producers of functional fatigue.

Practical Points in Connection With Amputations

George Perkins, M.C. In Proc. Royal Soc. Med., 35:11:711, September 1942.

(These remarks apply only to final amputations done through uninfected tissues with a reasonable certainty of primary healing.)

The first postoperative task, therefore, is the preparation of the stump; the second is the preparation of the patient. After an amputation the muscles of the stump, deprived of their natural function, waste and lose their physiological connection with the central nervous system. Moreover, the joint above the amputation is apt to be held flexed and to become fixed in that position. The muscles must be strengthened and employed in order that the amputee does not forget their existence. I consider this treatment—rehabilitation it may be called—most important. The patients are taught to exercise their stump muscles against the resistance of a weight working over a pulley. In an above-knee amputation, particular attention is paid to the kip extensors and the hip adductors; in a below-knee amputation, to the quadriceps. Also, the patient is made to move the joint above the amputation fully in all directions. Massage is deprecated, partly because it irritates the cut nerves, but chiefly from a psychological standpoint; the patient should learn to do something for himself and not rely on something done for him.

The patient is encouraged to move his stump voluntarily as soon as he will, and not to hold it immobile and inert; and of course the stump should not be propped up on a pillow. As soon as the wound has healed, the patient is sent to the gymnasium where in concert with others he exercises the stump muscles, and after the exercise he is shown by the masseur how to bandage the stump correctly.

The sooner a limb can be fitted the better, since it shortens the time during which the crippled limb is out of action. It usually is possible to fit an artificial leg in three months from the healing of the wound, and an artificial arm in six weeks.

When the patient has at last been fitted with his limb it is the surgeon's business to supervise his first attempts at walking.

Rehabilitation and Prehabilitation

Leonard G. Rowntree, M.D. Colonel, M.R., U. S. Army; Chief. Medical Division, National Headquarters, Selective Service System, Washington, D. C. In J.A.M.A., 119:15:1171, August 8, 1942.

Rehabilitation and Prehabilitation in Industry

A most illuminating article appeared in the pages of THE JOURNAL recently from the pen of Dr. William A. Sawyer, Medical Director of the Eastman Kodak Company, Rochester, N. Y. In the article, Dr. Sawyer states, among other things, that: 1. The physical qualifications necessary to an industrial worker are considerably less rigid than those demanded by our military forces. 2. The program of Selective Service bears a certain similarity to the industrial preemployment and replacement medical examination for the selection and classification of workers. Here there are four groups: I. Physically fit for employment—no defects or impairment. II. Physically fit for employment—minor defects, easily correctible. III. Physically fit for certain restricted employment. IV. Physically unfit for any employment (rejected). 3. In certain well organized plants, class II correctible defects are employed and followed up periodically while working until the condition has been taken care of adequately. 4. Industrial medicine comes nearer to preventive medicine than any other branch of the entire practice of medicine. 5. Under the ideal situation it is possible that industry could institute a more positive program on behalf of Selective Service. Industry could review all eligibles and offer examinations and advice concerning the correction of defects.

In this article Dr. Sawyer has dealt not only with the problem of incidence of disease but also with possible methods of meeting the situation adequately. He suggests a plan through which by foresight and planning the workman may have access to the best medical service in his home locality rather than to the cheapest.

Prehabilitation

Prehabilitation is a word coined by the Medical Division of the National Headquarters, Selective Service, to designate the correction of remediable defects prior to actual examination by Selective Service or the Army Examining and Induction Station. The plan is simple, is easily understood and can be readily carried out and should result in a pronounced diminution in the percentage of rejections and a proportionate increase in the number of men inducted into the Army of those physically examined.

The plan provides that (1) registrants familiarize themselves with the physical standards required, (2) that registrants apply to their local physicans and dentists if they fall short of the stipulated standards, (3) that family physicians and dentists correct defects if they are remediable and (4) that registrants carry certificates of prehabilitation to local induction boards at the time they present themselves for examination.

The Kenny Treatment

Don W. Gudakunst, M.D., Medical Director, The National Foundation for Infantile Paralysis. In Modern Hospital, 59:3:54, September 1942.

The National Foundation for Infantile Paralysis has sponsored the work of Miss Kenny in this country. She and her staff of assistants have been maintained at the University of Minnesota out of funds made available through the foundation. The medical advisory committees of the foundation have reviewed the results of her form of treatment and have recommended that this method be made available to the people of the United States. To that end training programs have been established by the foundation whereby technicians can be taught and physicians and nurses can be made familiar with their phase of the program. The foundation has been able to procure a limited amount of woolen material, which can be supplied to hospitals using the Kenny method of care for infantile paralysis victims.

In addition to this, the foundation stands ready to render assistance in the form of consultation and advice in preparing and assisting hospitals to meet the problems that arise in the face of epidemic conditions.

Infantile Paralysis—Importance of Treatment in the Acute Stage

Sister Elizabeth Kenny, Minneapolis. In N. Y. State J. Med., 42:17:1645, September 1, 1942.

In summing up this evidence it has been proved by the research carried out by Drs. McCarroll and Crego that a higher percentage of apparent recoveries can be obtained when no treatment has been given according to all orthodox methods, and the highest percentage of recoveries was 19, which was obtained with no treatment. The evidence available from the research carried out at the University of Minnesota Medical School proves that with the Kenny system over 80 per cent recoveries have been obtained in the bodily extremities. In the trunk muscles, according to the research carried out by Drs. McCarroll and Crego only 3 out of 42 patients recovered normal trunk muscles, and 21 of these patients developed a definite scoliosis. It is recorded and the evidence was shown to the group of medical representatives already mentioned that by the Kenny system 100 per cent recoveries have been obtained in all trunk and neck muscles, and this recovery was permanent. There had not been one case that retrogressed or developed any degree of deformity.

The evidence produced in this paper is evidence submitted in the first place by Drs. McCarroll and Crego with regard to the results obtained by orthodox treatment, and this evidence proves that no treatment has been more beneficial than any type of orthodox treatment. The evidence submitted with regard to the Kenny treatment and the results were witnessed by the medical observers already mentioned.

Light Therapy in Dermatology

Anthony C. Cipollaro, M. D., New York, N. Y. In Arch. P. T. 23:3:133, March 1942.

The subject of this paper has been discussed repeatedlly by many physicians. Reiteration and repetition will serve to refresh one's memory and again bring attention to the fact that ultraviolet rays are extremely valuable in the armamentarium of the dermatologist. When ultraviolet rays are used properly, satisfactory results often are obtained, but when they are used improperly, not only does discouragement and disappointment result but in some cases harm may be done. It is well for every physician who uses this form of radiant energy to be familiar especially with the limitations and with the contraindications of light. In the past practically every dermatosis was subjected to ultraviolet irradiation, but now it is definitely known that it is not only useless but dangerous to irradiate some dermatoses. It is impossible with the methods now available to evaluate critically the degree of improvement following treatment with any agent. Evaluation of the effects is based on impressions and clinical observations.

Dermatologists who advocate the use of carbon arc lamps justify their use on the basis that the initial expense of such lamps is low, that the results of treatment are satisfactory and that the ultraviolet ray spectrum approximates that of the sun. They also state that by varying the carbon and the filters, the desired wavelength may be obtained. The infrared rays emitted from carbon arc lamps may add to the efficacy of the ultraviolet rays in the treatment of some dermatoses.

The statement often has been made that good results are obtained with ultraviolet radiation in treating most cutaneous diseases. This claim, of course, is erroneous and probably is based on the clinical impressions of physicians who have little if any knowledge of dermatology. The disease may have involuted spontaneously, there may have been a faulty diagnosis or the condition may have improved as a result of treatment with topical remedies. However, ultraviolet irradiation is of great value in the practice of dermatology. There are about 35 dermatoses in which alleged good results have been obtained by at least several prominent dematologists or by physicians who are experts in the therapeutic use of light. These diseases are as follows:

Acne Group
1. Acne conglobata (acne cacheticorum)
2. Acne varioliformis
3. Acne vulgaris

Adenoma sebaceum
Alopecia areata and prematura
Dermatitis herpetiformis
Dermatophytosis and dermatophytide
Eczema group
1. Eczema hemostaticum
2. Eczema seborrhoicum
3. Eczema venenatum
4. Infantile eczema
5. Infectious eczematoid dermatitis
6. Intertrigo
7. Neurodermatitis

Erysipelas
Furunculosis and folliculitis
Leukoderma and vitiligo
Nevus flammeus (portwine mark)
Parapsoriasis
Pityriasis rosea
Pruritus group
1. Essential pruritus
2. Pruritus ani
3. Pruritus vulvae
4. Senile pruritus

Psoriasis
Sycosis vulgaris
Telangiectasis and nevus araneus
Tuberculodermas
1. Lupus vulgaris
2. Scrofuloderma
3. Tuberculosis cutis orificialis
4. Tuberculosis verrucosa cutis
5. Erythema induratum of Bazin
6. Papulonecrotic tuberculide

Ulcers and wounds

The author in his conclusions states that ultraviolet rays from all sources are used to a considerable extent in the practice of dermatology. There are some diseases that would progress indefinitely were it not for the beneficial effects of ultraviolet irradiation. There are many disfiguring conditions that are definitely ameliorated as a result of the exfoliating effects of ultraviolet rays. When light therapy is applied judiciously, especially in combination with other types of treatment, the course of many dermatoses can be considerably shortened. The well equipped dermatologist has in his armamentarium more than one source of artificial ultraviolet rays.

The Kenny Method of Treatment for Infantile Paralysis

Wallace H. Cole, M.D., Professor of Surgery and Director of Division of Orthopedic Surgery, University of Minnesota; John F. Pohl, M. D., Clinical Instructor of Orthopedic Surgery, University of Minnesota; Director of Infantile Paralysis Clinic, Minneapolis General Hospital; Miland E. Knapp, M.D., Clinical Assistant Professor of Radiology and Physical Therapy and Director of Training Courses in Kenny Technic, University of Minnesota. In Arch. Pediatrics, LIX:10:663. October 1942.

For a proper understanding and execution of muscle reeducation by Miss Kenny's technic a knowledge of her classification of muscles is necessary.

Group 1. Muscles that contract within their normal resting length.

Group 2. Muscles that have to be removed from their normal resting length before a suitable con-

traction can occur to perform their primary action.

Group 3. Muscle groups with separate origin and common insertion and multiple action.

Group 4. Muscle groups with dual origin and dual insertion and multiple action.

Group 5. Muscles that stabilize positions obtained by other muscle groups.

The first two are most important groups.

The biceps of the arm and the hamstrings belong to the first group and the triceps and quadriceps to the second and one example will show the importance of this classification. The quadriceps, to contract so as to perform its normal action, must first be pulled from its normal resting position by flexion of the knee. Only then can the pull be placed at the insertion of the patellar tendon and the knee extended. The performance of this motion is the primary function of the quadriceps muscle. So-called "setting" of the muscle with the knee extended does not have any place in the Kenny method.

Muscle reeducation, then, depends upon the relief of spasm, the teaching of muscle awareness, the combatting of incoordination and "alienation," and the retraining of nerve pathways back to the non-functioning muscles.

In the following discussion, a fairly complete description of the reeducation of the neck muscles is given. After that, the muscles performing the action and the insertion to be pointed out is started. Special points to be watched are explained. But it is understood that the same general procedures are carried out in each case. Only two positions are used, the supine and prone, and all the anterior muscles are treated before the patient is turned over to allow the posterior ones to be attended.

Physical Measures in the Treatment of Verterans

Charles R. Brooke, M.D., Veterans Administration, Bronx, N. Y., and Newark, N. J. In Arch. P. T., 23:6:353, June 1942.

There have been over 4,000,000 persons discharged from the armed forces of the United States, from service in wars, expeditions and peace time activities, who are potentially entitled to hospitalization and treatment by the Veterans' Administration. There were 60,382 veterans under treatment and 16,517 receiving domiciliary care one year ago.

The treatments of choice for patients suffering from trauma of the soft parts, bones and joints, are, first, short wave diathermy in the majority of cases; second, conventional diathermy, and third, infra-red rays. The types of injuries are many and vary in degree and severity, being inflicted by gunshot, bursting shrapnel, grenades and high explosive shells. There are seen many patients with simple and compound fractures with deformities and joint and bone infection. These patients show some impairment of circulation, some functional loss, osteomyelitis with loss of bone substance and even loss of limb.

Physically Handicapped Persons and Employment

Donald C. Norris, M.D., F.R.C.S., Barrister-at-Law, Chief Medical Officer, Metropolitan Water Board; Medical Officer, Bank of England. In Brit. J. Phys. Med. and Indus. Hygiene, 5:7:130, September-October 1942.

The Urgent Need for Efficient Workers

There is no doubt that a great deal of waste occurs now from the fitting of square pegs into round holes and from the delay and difficulty incidental to finding a suitable aperture into which one may introduce a given peg. Not the least of these problems arises from the fact that, except in a totalitarian state, men and women are not pegs at all, and cannot be moved about arbitrarily and plugged in at the discretion of an official who claims to have the sole right to direct their destinies.

Physical Requirements of Industry

The physically handicapped form a large and heterogeneous group, which has in the mass a considerable capacity for contributing to the national war effort, and if allowed to do so may thereby achieve selfrespect and the satisfaction and happiness which come from economic independence and the realization that one is no longer alone or unwanted. But if these results are to be obtained, it is essential that the medical officer who advises about such employment should be familiar with the physiological and anatomical requirements of industry, and with the potentialities and limitations attaching to the training and placing of disabled workers.

Training of Physically Handicapped Persons

During the latter part of the war of 1914-18 the Government set up training centers for disabled ex-service men but as the numbers of those seeking training declined, the scheme was allowed to lapse. Similar plans have now been drafted by the Ministry of Labor and National Service which issued an *Interim Scheme for the Training and Resettlement of Disabled Persons* (1942). The Ministry officials interview injured patients in hospital and advise them about steps to be taken to assist them to get back to work; some 20,000 interviews were conducted in the first six months of the operation of this scheme, and about 6 per cent of the persons concerned were found to require retraining after medical treatment was completed. In most cases the injured worker was able to resume his pre-accident occupation after a short period of instruction in one of the Ministry's Training Centers, but so far the Ministry has not set up any special center for more seriously disabled.

Discrimination Against Handicapped Persons Seeking Employment

There is no doubt that discrimination is practiced against the engagement of physically handicapped workers, but such discrimination usually is based on misapprehension, ignorance or prejudice.

Galvanic Stimulation of Muscles Following Peripheral Nerve Section

From Editorials, abst. J.A.M.A., 120:5:375, October 3, 1942.

About one hundred years ago a controversy, typical of many that arose in the early nineteenth century, disturbed physiologists and anatomists. They debated actively the question of the relationship between nervous tissue, particularly the spinal and peripheral nerves, and the contractile elements of muscle. Was the property of muscular contractility inherent in the muscle itself or was it derived from the nervous system? Haller, then the greatest voice in physiology, maintained after numerous experiments that contractility remained after the nerves to a muscle had been cut through. The property of contractility, according to the hallerians, was independent of the nervous system and inherent in the muscular fiber itself. Such a bold assertion could not pass in that period without animadversion. Other learned physiologists, an influential sect called the "neurologists," maintained that contractility was a property of the nervous system itself. Although the neurologists modified their dogmatic tenents from time to time and the hallerians extended the term "contractility," neither side overwhelmed the other for many years. Frequent experiments won for the neurologists a position of some security. Muscles lose their power of contractility when deprived of nervous influence after ten days or more.

As was characteristic of the period, much paper and ink were expended in theoretical argumentation. A few observers made wise use of the experimental method. John Reid, a young lecturer on physiology in th University of Edinburgh, while at work attempting to unravel the hallerian-neurologist entanglement, made another discovery of prime importance to medicine and of far reaching significance in civil as well as military neurology. In the third of a series of experiments, Reid reported his results as follows:

"The spinal nerves were cut across, as they lie in the lower part of the spinal canal, in four frogs, and both posterior extremities were thus insulated from their nervous connections with the spinal cord. The muscles of one of the paralyzed limbs were daily exercised by a weal galvanic battery, while the muscles of the other limb were allowed to remain quiescent. This was continued for two months, and at the end of that time the muscles of the exercised limb retained their original size and firmness and contracted vigorously, while those of the quiescent limb had shrunk to at least one half of their former bulk and presented a marked contrast with those of the exercised limb. The muscles of the quiescent limb still retained their contractility, even at the end of two months; but there can be little doubt that, from the imperfect nutrition of the muscles and the progressing changes in their physical structure, this would in no time have disappeared had circumstances permitted me to prolong the experiment."

Reid noted the importance of galvanic stimulation in maintaining the nutrition of a muscle deprived of its nervous influence. Subsequently other investigators learned that galvanism is the only means at our command of stimulating muscular contraction in a completely paralyzed muscle. As early as 1841 Reid saw the clinical implication of his animal experiment, for in a footnote he wrote "The application of the results of these experiments to the treatment of certain cases of paralysis is so obvious as to require no illustration."

Although the value of galvanism to Reid may have been 'obvious,' its use was by no means universally adopted by the medical profession. Over one hundred years since his discovery its value has been both overrated and completely repudiated. Experiments in the last war did not completely settle the problem, but the recent work of Ernest Gutmann and Ludwig Guttmann put a stamp of approval on the importance of inducing muscular contractions by galvanic stimulation in accelerating the return of muscle to its initial volume after reinnervation and possibly in preventing atrophy. These experimenters found, moreover, that muscles treated with galvanism showed less fibrosis and a better excitability and contractility on direct stimulation as well as a stronger reflex action than those untreated. Reid's position is thus completely upheld by Gutmann and Guttmann, and his crucial experiment, nearly lost in the dusty literature of the past, takes a new and important place in the history of medicine.

Posture Habits in Infancy Affecting Foot and Leg Alignments

H. E. Thelander, M.D., and Mabel L. Fitzhugh, San Francisco, Calif. In J. Pediatrics, 21:3:306, September 1942.

The material in our study was obtained largely from the Children's Health Center of the American Association of University Women (A.A.U.W.). Over 1,000 children are registered at the center.

The authors' conclusions are:

1. Deviations from the ideal midposition of children's feet may be partly due to prenatal causes and partly acquired by faulty sleeping positions.

2. Some of these malalignments are actual and persist, and others may disappear during normal growth under favorable conditions of symmetrical activity.

3. It is important that deviations from the neutral position be recognized and corrected before weight-bearing begins.

4. Distorted sleeping and sitting positions during infancy and childhood are found to cause permanent distortions of feet, ankles and knees.

5. It is not safe to assume that all early faults in alignment will automatically disappear during the period of growth. The earlier a distortion and its contributing factors are recognized and measures taken to overcome them the more certain are the results.

Primer on Arthritis

Prepared by a Committee of the American Rheumatism Association. In J.A.M.A., 119:14:1089, August 1, 1942.

Treatment of osteoarthritis (hypertrophic, degenerative) includes:

(a) The correction of body mechanics (posture) by proper rest positions, by corrective exercises for the body and by orthopedic braces and supports.

(b) The maintenance of good circulation. The blood supply of the joints must be increased by all possible means if the permanent joint tissue changes are to be minimized. Rest and freedom from worry are important.

(c) Dietetic errors, overexertion and gastrointestinal dysfunction all require steady care.

Pain may be controlled by the use of acetylsalicylic acid or other salicylates.

The local treatment of joints is aimed to reduce pain. Heat and massage with moderate voluntary exercise are useful in improving the local blood supply. One should, however, avoid massage of the tender osteoid tissue covering bony growths at the margins of the joints, as it is apt to cause more irritation and so increase their size and sensitiveness. Voluntary exercise is much better than passive exercise for this reason though passive exercise may decrease the stiffness. Excessive exercise increases the stiffness. Local counterirritants may be used to relieve pain and cause hyperemia, such as analgesic balm and oil of wintergreen. Roentgen treatments have been used with reported relief of the pain in some joints, particularly the knees or the hips. They do not, however, change the bony exostosis but through the relief of pain may increase the range of motion if the chondro-osseous edges are no longer sensitive.

Osteoarthritic joints require protection. Rest is essential, and, since this is a nonankylosing type of arthritis, complete rest in casts may be given without danger of permanent stiffness. Usually the joints are more limber after rest in bed or after the removal of plaster splints than before the rest was given.

Surgery may play a small part in the region of the knees and hips.

Injuries to Muscles

W. H. Northway, M.D., San Francisco. In Arch. P. T., 23:7:420, July 1942.

Heat.—Heat may be applied by a hot compress, a hot water bag, a hot bath, an electrical heating pad, a radiant heater and medical diathermy.

Medical diathermy is a useful source of deep heat for office or hospital practice.

The cable is used in the form either of a pancake coil or of three turns of the cable wrapped around the area to be treated. The latter is adaptable only to the extremities. The pancake coil is generally made up of three turns of the cable with each turn separated ½ to 1 inch from its neighbor. The diameter of the pancake is determined by the size of the area to be treated. At our clinic we believe in having the diameter much larger than the injured area, so that the energy is distributed over a large area.

The pancake coil and the disk are useful for treating large flat surfaces, although the pancake coil can be molded to some extent about a curved surface. The disk is especially valuable for treating areas so sensitive that even the weight of the cable is an added discomfort.

Massage.—Massage is useful after the application of heat. The procedure may be used early provided it is carried out properly.

Exercise.—Exercise should begin early in the treatment of muscle injuries amenable to physical therapy.

There is little need for passive exercise or graduated muscle contraction by the faradic current in the treatment of muscle injuries amenable to physical therapy procedures alone. Active exercise is to be preferred and generally can be instituted early.

Unusual Reaction to Short Wave Exposure

Queries and Minor Notes, abst. J.A.M.A., 120:5:412, October 3, 1942.

To the Editor:—Regarding the query entitled "Unusual reaction to short wave exposure" (THE JOURNAL, Aug. 1, 1942, p. 1154), while I was treating a woman aged 27 for arthritic pains she occasionally became very anxious. She also complained of nausea and was afraid she would faint. As soon as the exposure was over (a 10 meter wavelength machine was used) she would feel better.

A. R. Aurello, M. D., Brooklyn

To the Editor:—In the answer to a query about an unusual reaction to short wave exposure (THE JOURNAL, Aug. 1, 1942, p. 1154), it is stated that similar reactions have not been reported so far. Nevertheless it seems that they are not unusual at all. My attention was attracted to this subject by several radio operators serving on ocean liners. They complained that the transmission of messages by ultra short waves was followed by a feeling of drunkenness, disorientation and exceptional nervousness, while the same transmission under the same condition but by medium waves did not produce any disturbance. One of these men had to walk on the ship deck for about two hours after his night service ended at midnight, but this occurred only after transmitting by short waves. After ten to fifteen minutes of intense short (4 meters) wave diathermy of the neck or shoulders, I occasionally observed vertigo and a feeling of drunkenness of short duration. One patient almost fell from his chair when the current was turned off. Years ago I read that carrier pigeons, if released in the vicinity of a short wave transmitter, circle around and start in the right direction only when the transmission is over. It seems that these manifestations have something in common which would be worth while investigating.

Paolo Ravenna, M. D., Chicago

Rehabilitation in Ophthalmic Cases

Lady Duke-Elder, M. B., B. S. Medical Officer, Zachery Merton Auxiliary Hospital and R. C. Davenport, F.R.C.S. Medical Officer, St. Dunstan's, Church Stretton; Surgeon and Dean of the Medical School, Royal London Ophthalmic Hospital. In Brit. J. Phys. Med. and Indus. Hygiene, 5:5:88, May-June 1942.

From the practical point of view rehabilitation in recoverable eye cases can be described most usefully under two heads: first, the functional rehabilitation of those who suddenly have been visually disoriented, e.g., by the loss of one eye or by the development of acute muscular imbalance; secondly, the physical rehabilitation of those who are convalescing from an ocular disease or injury.

Functional Rehabilitation

In the first category, measures to accommodate the patient to the loss of an eye are relatively simple. The principles to be observed are rapid restoration of physical fitness, training to compensate for the loss of binocular vision and to readjust the faculty of orientation, and measures to overcome the psychological distress of mutilation. These ends are attained by physical training exercises in which, in addition to toning up the system generally, special attention is paid to reeducating the sense of equilibrium and the judgment of distances by means of parallel bars, jumping and balancing exercises; this is implemented by organized games out-of-doors, particularly ball games, which are rapidly stepped up in speed, and organized indoor games such as ping-pong and billiards. The more sedentary part of the day is spent in occupational therapy; this can be of great value, the best results being obtained by weaving on a big loom and the performance of other tasks involving rapid and fine coordination between eye and hand. Finally, in the development of what might be called "uniocular confidence," the psychological aspect is by no means of least importance. Handling by the medical and nursing staffs should be encouraging but very matter-of-fact; emphasis should be laid on the wide scope in both military and civil life for the one-eyed person, as exemplified in an Admiral Nelson or a General Wavell; while association with others who are in a like condition but have now realized the smallness of the disability from both the practical and cosmetic point of view, is of the first importance. Partly with the intention of producing comfort and hygiene of the socket and partly to stimulate selfconfidence the utmost care should be taken that the first artificial eye is well-fitting and good-looking; the patient should not be returned to duty until this is insured.

Mecholyl Iontophoresis in Arthritis

Zigmore Harris, M.D., Veterans' Administration, Marion, Ill. In Med. Bull. Vet. Admin., 19:2:182, October 1942.

The five essentials to success in chronic arthritis therapy are early diagnosis; diligent treatment, continued over prolonged periods; cooperation of the patients; appreciation that physical therapy promises more than drug administration; and the proper alternation or combination of rest and exercise.

It was anticipated that the patients who had received mecholyl iontophoresis might have recurrences and would return shortly after that treatment, as had been the experience when diathermy alone had been used. But it is quite interesting that since this therapy was instituted (i. e., six months before the preparation of this report, which was written in December 1941), none of the patients so treated have returned. Two of them wrote that they had received diathermy treatments before but had not felt such sudden and prolonged relief from it as they had experienced from mecholyl iontophoresis.

The disorders of all (35) patients in our series had been diagnosticated arthritis, either of the hypertrophic or atrophic type, and this clinical diagnosis had been corroborated by X-ray examination and later observations. Our patients were of the older age group, 40 to 55, and practically all had the hypertrophic form of the disease.

We usually begin iontophoresis with a 10 milliamperes galvanic current, increased to 20. But this average milliamperage was reduced at times when patients complained of increased heat and pricking sensations, and as low as 6 milliamperes has been employed. The duration of the treatment was, at first, ten minutes; but this was gradually raised to twenty minutes. The number of treatments, once daily, of the individual patients varied from two to fifty-seven, being dependent upon their respective periods of hospital residence. Except for occasional administration of acetylsalicylic acid tablets, no other remedies were associated with the mecholyl iontophoresis. Before applying the electordes a layer of ointment was placed over the area to be treated, which was then covered with the usual asbestos pad moistened with water. The positive electrode was placed over the area to be treated, and the negative electrode served as the dispersive one. There is some economy in the use of an ointment rather than a solution, in avoidance of the necessity of moistening the asbestos pad with a solution.

Of the patients treated, good results were obtained in 18, or 51.4 per cent; fair results in 11, or 31.4 per cent and poor results in 6, or 17.2 per cent. This gives a total of 29 patients (or 84.8 per cent) who were benefited.

Craft Analysis in Occupational Therapy

G. D. Kersley, M.A., M.D., M.R.C.P. Major, R.A.M.C.; Physician, Royal National Hospital for Rheumatic Diseases; Assistant Physician, Royal United Hospital, Bath. In Brit. J. Phys. Med. and Indus. Hygiene, 5:7:133, September-October 1942.

Suitable Routine of Treatment

When a patient is seen who is expected to benefit by occupational therapy, the medical adviser should write a prescription containing a brief account of the condition to be treated, the movements to be

encouraged, the restrictions to be imposed, and any other relevant data. When seen in the occupational therapy department, the individual himself must be assessed as regards his mental capabilities, education and volition, for if he has no interest in the project selected, the personality of the instructor or instructress will have to bear the full brunt of engendering this interest. Next, the physical aspect must be considered and a project selected, which, while being compatible with the mental attributes of the patient, will conform to the requirements of the prescription. This requires a detailed knowledge of craft analysis: below, an attempt is made to show how this is to be achieved. A sound knowledge of kinesthetics is necessary for an intelligent appreciation of the subject, but apart from this and until considerable experience has been accumulated, some "catalogued" analysis is helpful. Three types of analysis charts have been utilized, one for detailed analysis of the effects and uses to which a particular tool in a craft may be put, a second for a less detailed analysis of the principal value of a craft as a whole, and the third for classification of crafts according to specific disabilities for which they may be utilized.

Main Principles of Occupational Therapy

Before detailed analysis is dealt with, mention should be made of certain principles which must be appreciated. The work done may be subdivided into primary and secondary movements and static work. The majority of the movements in occupational therapy are "resisted," but in some cases they are "assisted," as instanced by the movement of the left elbow and shoulder in right-handed planning. "Secondary" movements, such as that of the left knee and ankle in long-range planing, may be of great value, especially as the patient does not realize that this is an intended part of his treatment. Static work is in many cases an important factor; for example, the use of the gripping muscles in planing is quite strong, and may be either beneficial or harmful according to the condition under treatment. Static contraction without frequent relaxation is particularly undesirable in rheumatic conditions, and in all cases rhythmic relaxation between movements should be encouraged.

The Economic Value of Physical Therapy Following Injuries

B. E. Kuechle, Vice President and Claim Manager, Employers Mutual Liability Insurance Company of Wisconsin, Wausau, Wisc. In Arch. P. T. 23:5:273, May 1942.

I should like to summarize a few "musts" for physicians:

1. Do not order physical therapy unless it is really indicated.
2. Treat the pathologic condition.
3. Use the proper kind of treatment.
4. Stop treatment when progress ceases.
5. Employ work therapy as soon as possible.

As I have stated previously, I believe the time will come when each hospital will have its own physical therapy and its own occupational therapy department under technicians specially trained for their work, and more depends on the technician than on the physical properties in such departments. Not only must the technician have the educational and scientific background for carrying on her work as a technician, but she must know the psychologic status in each case. She must have great persuasive powers, for she will have to convince most patients that work is good for them. She must know how to lead the patient gradually from passive exercises to light diversional occupations and then to occupations with a purposeful end. Physical therapy and occupational therapy must dovetail.

With such a cooperative program it will be found generally, as it has been found by us, that physical therapy pays.

Rationalization of Peripheral Vascular Disease

George H. Yeager, M.D., Baltimore. In Arch. P. T., 23:5:267, May 1942.

No form of heat should be applied unless there has been a thorough sensory examination. Although the extremity should be kept warm, local applications of heat should be considered potentially dangerous. More blood and more oxygen may be required than the narrowed or occluded vessels can deliver. As a consequence, otherwise viable tissue may become devitalized.

Massage and the hot and cold contrast bath should be advised most cautiously. Both procedures are of potential danger because of the possibility of trauma and further devitalization of tissue.

Postural exercises may be a valuable adjunct. The passive type are probably indicated more often than the active, since in this type as much oxygen is not consumed by contrasting muscles. The vasoscillating bed has been found to be effective.

Short wave diathermy if used should be administered cautiously. As with other forms of heat, it is preferable because of its reflex influence.

Ion transfer with acetyl-beta-methylcholine chloride (mecholyl) has gained some vogue and seems to be giving encouraging results.

Other physical (mechanical) methods of treatment consist of the use of the pressure-suction boot and of the intermittent venous occlusion apparatus either with the pressure cuff or with the vacuum cuff. Both of these methods have definite limitations, and there is still considerable disagreement as to the individual efficacy of each.

Rational treatment of peripheral vascular disease is dependent on:

1. A more careful consideration of each patient as a specific entity.
2. A thorough diagnostic study.
3. Consideration of the problem from two phases: (a) spasm and (b) organic occlusion.
4. The correlation of each phase with the other and treatment from the viewpoint of removal of the spastic element and development of the collateral circulation.

Occupational Therapy for the Wounded

G. R. Girdlestone, F.R.C.S. Hon. Regional Consultant in Orthopedic Surgery to the Army; Regional Orthopedic Consultant, E. M. S. In Brit. J. Phys. Med. and Indus. Hygiene, 5:5:91, May-June 1942.

We can divide rehabilitation into five processes which in their turn accompany the reaction, the healing and recovery of the tissues of a seriously wounded man. These are as follows:

(1) Rest.
(2) "Diversional" occupation
(3) Therapeutic occupation } Occupational Therapy
(4a) Reconditioning, leading to (4b) Vocational training leading to
(5a) Duty (5b) Employment

However "diversional" this occupation may seem to be, it is genuine therapy, and nothing better can be prescribed at this stage. For while the occupation "diverts" the patient's mind from sensory broodings it "adverts" it to his job, whatever the latter may be. Even at this stage the occupational therapist will do much more for the man than merely provide him with some occupation. She will get him thoroughly interested in making something he regards as really worth while.

While all occupation is therapeutic it often is possible to prescribe some specific occupation which will gradually and increasingly engage the coordinated activity of the disabled part: in doing this the occupational therapist, as a student of living anatomy and a technician in the handicrafts, exercises her highest function.

Again, it is a profound mistake to peg a man down to the persistent use of a badly damaged hand or limb in some narrow repetitive task. Nothing can be more discouraging or lead more surely to a sense of inferiority and frustration. In truth the wise occupational therapist knows that only a minority of men need authentic occupational therapy prescriptions. She can do far more to quicken the recovery of the majority by getting them all keenly working at a few constructive crafts. These will be chosen for their interest, and crafts which will produce something useful or beautiful will be preferred. From these stock occupations she will select for each individual that which will be most helpful. It is delightful to see the excellent technic of the skilled occupational therapist. Illustrations can do little more than suggest the way in which the work can be adapted to the disability.

Surgical Amputations and the Fitting of Artificial Limbs

A. W. J. Craft, M. R. C. S., L. R. C. P., Limb-fitting Surgeon with the Ministry of Pensions, Queen Mary's Hospital, Roehampton. In Brit. Med. J., No. 4265:389, October 3, 1942.

Care and treatment of the amputated limb are almost as important as the amputation itself and should begin from the day of operation. The stump does not require a pillow or pad to rest upon, but ought to lie extended, while in the case of a below-knee amputation a back splint often is necessary to prevent flexion of the knee-joint. After the stitches have been taken out and the wound is healing, active exercises should be started while the stump is still bandaged. Movements of the joints must be encouraged, to tone up the muscles and assist in tissue reduction in the stump. Massage has been shown to be inadvisable. Furthermore, it does not reduce the edema but rather irritates the nerves, and therefore should not be given at any stage during recovery.

The modern method devised by the Ministry of Pensions and adopted by the E.M.S. is to bandage the stump with crepe bandages from the time the stitches are taken out. It has been proved from records compiled at Roehampton that an above-knee stump requires only three weeks' bandaging to render it fit for measurements to be taken for an artificial limb.

Stump Exercises.—A recent development in the care of stumps after amputation is a course of exercises adopted to reeducate the remaining muscles of the stump and thus prepare it to control the artificial limb. A narrow sleeve, about 4 in. wide at the back and 2 in. at the front, from which a cord passes over a pulley and suspends a weight of 7 to 14 lb., is placed on the stump. The stump is extended against the pull of the suspended weight to assist the muscultature in regaining its strength—the weights, rate of exercise, and duration varying with the increase in muscle tone. The adductors are similarly exercised by the patient's standing with his side toward the pulley, the stump being drawn towards the midline of the body. If the patient is at home the exercise can be carried out by allowing the cord to pass over the back of a chair upon which somebody is sitting to steady it.

An arm amputee usually has a more despondent outlook than a leg case. It is for this reason that such cases should be fitted with prostheses as quickly as possible, otherwise there is a tendency to rely too much on the remaining hand. An arm in the average case can be fitted and used within a month of the operation.

Book Reviews

ADVANCES IN INTERNAL MEDICINE. Volume I. Editor, J. Murray Steele, M. D., Welfare Hospital, New York University Division, Welfare Island, N. Y. Cloth. Price, $4.50. Pp. 292. New York: Interscience Pulishers, Inc., 1942.

This is the first volume of a new series of books presenting progress in internal medicine edited by Doctor Steele with seven associate editors. This volume presents a summary of the recent progress in this field. This is discussed from the point of view of a particular individual, usually one who has contributed to the advances of which he is writing. The style is sufficiently simple and broad to be intelligible to those individuals whose main

interests lie outside the scope of the particular subject and at the same time sufficiently detailed to be of use to persons working in this field.

This scheme is illustrated in this volume which contains discussions on the following subjects: the use of the Miller-Abbott tube in the diagnosis and treatment of disorders of the gastro-intestinal tract by W. Osler Abbott, Philadelphia; the use of insulin and protamine insulin in the treatment of diabetes by Paul H. Lavietes, New Haven; sympathetic nervous control of the peripheral vascular system by Robert W. Wilkins, Boston; the antibacterial action of the sulfonamide drugs by Colin M. MacLeod, New York; the choice of the sulfonamides in the treatment of infection by Chester S. Keefer, Boston; infections of the urinary tract by Lowell A. Rantz, San Francisco; present trends in the study of epidemic influenza by Thomas Francis, Jr., Ann Arbor; hypertension, a review of humoral pathogenesis and clinical treatment by Irvine H. Page and A. C. Corcoran, Indianapolis; nephrosis by Lee E. Farr, Wilmington, Del.; and riboflavin deficiency by Harold Jeghers, Boston.

Each essay furnishes an understanding of the problem and gives the recent advances in each subject. The volume will be of interest to every general practitioner.

THE PATIENT AS A PERSON: A STUDY OF THE SOCIAL ASPECTS OF ILLNESS. By G. Canby Robinson, M.D., LL.D., Sc.D., Lecturer in Medicine, Johns Hopkins University. Cloth. Price, $3. Pp. 423. New York: The Commonwealth Fund, 1941.

This study shows what every physical therapist knows—that the recovery of many patients can be hastened by clearing away mental doubts, by relieving worry that may be daily wearing down courage. The human problems which surround the patient are not apart from illness, but form an important component of illness, and it is the physician's duty, therefore, to understand them.

The physical therapist should remember what Robinson shows—that in the hospital the patient is not seen in his natural environment and many procedures demand attention, so that few opportunities and little time are available for the serious consideration of the individual and of the personal problems that are contributory to his illness. His disease is studied with great care, but his illness may be neglected.

In the consideration of patients with circulatory symptoms this study shows that the diagnosis of heart disease is a potential explosive, which may blast away happiness and efficiency to a far greater extent than is warranted by the findings of the physician. It is emphasized that a careful, broad and understanding study of the patient as a whole, as well as of his disease is important. Robinson in his study of patients with respiratory symptoms indicates that there are few situations related to medical care which place upon patients so much emotional stress and strain as the diagnosis of pulmonary tuberculosis. In the patients with digestive symptoms it is shown quite clearly the relationship of emotional disturbances to digestive symptoms, both when organic disease is present and when no evidence of it is found. The diabetic, the syphilitic and the epileptic also are considered.

Robinson's study of the psychoneurotic patient is of vital interest to every physical therapist. He shows that these patients often are in greater need of medical care in the broader sense than any other type of ambulatory patients. In this study it was found that the characteristics of a psychoneurosis are dependent on the constitutional reactions of the patient to emotional stress and strain rather than on the nature of the adverse social conditions to which the patient reacts emotionally. The study found no correlation between types of social adversity and the symptoms they may cause. Robinson brings out an important fact for physical therapists. He states that psychoneurotic patients often hope for an organic disease to explain their disability and discomfort, and reassurance regarding the soundness of their bodies seldom satisfies them unless it is accompanied by an explanation of their symptoms on another basis which they can accept as reasonable. This acceptance is not readily obtained, unless it is given on the basis of an understanding of the patient as a whole, including his personal and social status and the emotional strain that may be operative as a causative factor in his illness. This book should be read by every physical therapist.

PSYCHOLOGIC CARE DURING INFANCY AND CHILDHOOD. By Ruth Morris Bakwin, B. A., M.A., M.D., and Harry Bakwin, B.S., M.D. Cloth. Pp. 317. Price, $3.50. New York: D. Appleton-Century Company, Inc., 1942.

This book written by pediatricians is intended for the use of their fellow practitioners and related associates. As such it is a valuable source of orientation in the general field of psychologic problems in infants and children. The authors make a definite contribution to their contention that "Pediatric care, which fails to take into account the emotional, mental and motor attributes, is necessarily incomplete."

In a brief, summary-like form the book supplies much needed information for those pediatricians who have not had intensive training in psychiatry. It gives the reader a ready means of reference for such subjects with which he will be confronted daily; for example, enuresis, thumb sucking and apprehensive children. The book confines itself to well accepted principles and makes no attempt to discuss any complex interpretations and advantageously keeps away from psychoanalytic terminology or concepts. This makes it easy and understandable for the average practitioner. The only criticism, and perhaps it is none too valid because of the purpose of the book, is that if one accepts the simple outlines of therapy that are offered he is apt to be disappointed frequently. We must realize that even though understanding of emotional problems in children may exist it does not guarantee successful therapy unless one is also acquainted with technics of therapy.

AMERICAN RED CROSS TEXTBOOK ON RED CROSS HOME NURSING PREPARED UNDER THE DIRECTION OF NURSING SERVICE, AMERICAN RED CROSS. By Lona L. Trott, R.N., B.S., Assistant Director, Health Education, Red Cross Nursing Service, Washington, D. C. Formerly American Red Cross Textbook Home Hygiene and Care of the Sick by Jane A. Delano, R. N. Paper: price, 60 cents. Cloth: price, $1.10. Pp. 431, with 103 illustrations. Philadelphia: Blakiston Company, 1942.

The first edition of this book by Jane A. Delano and Isabel McIsaac appeared in 1913 under the title of "Elementary Hygiene and Care of the Sick." In 1941 the name of the course was changed to "Red Cross Home Nursing," the title now given to this book. This edition has been revised by a committee of competent authorities.

This book is written in the belief that hospital, clinics, physicians, nurses and other professionally trained workers are essential in any health program, but the individual in the home, particularly the mother, continues to hold a responsible place in relation to health. Her part is one of keeping herself and her family in good health, of assisting in giving proper care to members of her household when they are ill, and of supporting community action for the promotion of health.

This book and the course of the same name in which it is used as a textbook can be highly recommended. To aid our nation in this World War one person in every home should take a course in "Red Cross Home Nursing" to preserve the family health and to conserve the services of physicians and nurses.

STEDMAN'S PRACTICAL MEDICAL DICTIONARY. By Stanley Thomas Garber, B.S., M.D., University of Cincinnati College of Medicine. Fifteenth Revised Edition. Cloth. Price, $7.00; with thumb index, $7.50. Pp. 1257, with illustrations. Baltimore: The Williams and Wilkins Company, 1942.

This edition of this popular dictionary has been entirely reset and a number of eliminations and corrections have been made. New illustrations have been added. The entire terminology of bacteria has been revised to conform with the classification proposed by the Society of American Bacteriologists. The section on vitamins has been revised again. Many new biochemical and chemotherapeutic compounds have been added. The terms in the fields of allergy and hematology have been rewritten.

Special attention has been paid to the etymology of the words used in medicine as the author correctly believes that nothing aids so much in fixing a definition in one's memory as a knowledge of the formation of the term. In spelling of medical terms preference has been given to the simpler forms.

The dictionary, basically, retains the features that have made it so valuable to students, physicians and others who need a complete medical dictionary. It can be highly recommended as easy to read, authoritative, reliable and complete.

CIVILIAN HEALTH IN WARTIME. By Francis R. Dieuaide, M. D., Associate Professor of Medicine, Harvard Medical School; Massachusetts General Hospital. Cloth. Price, $2.50. Pp. 328. Cambridge, Mass.: Harvard University Press, 1942.

This is a good, well written, easily read book, presenting material which is concise, to the point and in not too technical a form. It offers hope and comfort and points a way towards a solution of many problems in public health and public well being that confront us now and will for the days that follow.

Doctor Dieuaide defines health as not only physical but mental, and states that health is an aspect of all parts and functions of the body and mind taken together and that the absence of disease, at least as disease usually is understood, is not necessarily an accurate description of health, but that health comprises our ability to function as individuals at a high level.

He points out that this is a total war requiring active engagement therein of every able bodied man and woman, and that the full development of our resources cannot be done without a high degree of national health. With recent advancements made in death-dealing machinery, destruction to health and life in civilian population from these facts alone has increased many thousands over those of the first world war, and blackouts and civilian bombings tend to create a war of nerves.

From a background of peace many of our people were on an inadequate diet and since we have "entered a great international trial of our strength," the problem of adequate diets for all demands a solution. Only by better diets can we expect the necessary increased strength to carry out a total war to victory.

As regards infectious diseases we must use our present knowledge and resources of medical science efficiently and secure support and understanding. If this can be accomplished we need have no fear of epidemics and infectious diseases.

The author mentions the role of housing and clothing in determining public health and the great importance of conserving health of mothers, and adequate provision for protection of the health of the children—the citizens of tomorrow. He stresses that recreation and pleasing occupational surroundings will do much toward health, both physical and mental, and that the adequate use of medical resources, including physicians and nurses and medical institutions, must be sought.

Doctor Dieuaide closes with a chapter on morale and the second war. Morale after all is mental health in respect to stress and strain in a given period and set of circumstances, and a high state of morale does not long remain when health is poor. He emphasizes that we must have a positive aim and not be divided by disagreement, misstatements and propaganda and that only as united nations will we lead to a higher type of international association and a better order among nations after the war is over.

FIRST AID: SURGICAL AND MEDICAL. By Warren H. Cole, M. D., F.A.C.S., Professor and Head of the Department of Surgery, University of Illinois College of Medicine, Chicago, and Charles B. Puestow, B.S., M.D., Associate Professor of Surgery, University of Illinois College of Medicine. Fabrikoid. Price, $3. Pp. 351, with 92 illustrations by Carl Linden in collaboration with Tom Jones of the Illustration Studios of the University of Illinois College of Medicine. New York & London: D. Appleton-Century Company, Inc., 1942.

This is a book on first aid for physicians, medical students and nurses by the above-mentioned editors and seventeen contributing authors from the University of Illinois College of Medicine, all authorities in their fields. Among the many outstanding parts of this book are the first chapter on "Precautions and Limitations in First Aid Work," and the excellent illustrations.

The first chapter calls our attention to errors of treatment, errors in technic, erroneous interpretation of indications, and the necessity of knowing limitations of ability. The illustrations of bandages, methods of transporting patients, splinting of fractures, and resuscitation are outstanding.

The authors emphasize that because of the War, there has been a tendency in the medical schools throughout the country to stress the teaching of first aid to medical students. Cole and Puestow believe that this first aid teaching should be a part of the medical school curriculum in times of peace as well as in times of war. The greater part of the text consists of the consideration of emergencies which are related to conditions created by war. The authors also have included emergencies encountered in civilian life, many of which are medical, not surgical.

This book is very timely. It should be a textbook in every medical school and school of nursing, and it should be in the library of every physician.

CINEPLASTIC OPERATIONS ON STUMPS OF THE UPPER EXTREMITY. By Rudolf Nissen, M. D., and Ernst Bergmann, M. D. Cloth. Price, $3.75. Pp. 88, with 96 illustrations. New York: Grune & Stratton, Inc., 1942.

An interesting history of the cinetization of amputation stumps is given in the first chapter. The book, however, is concerned chiefly with the operative technic of the Sauerbruch muscle canal construction. The second chapter discusses the physiology and anatomy involved in making a lever which can control an artificial limb or prosthesis. Pegs are placed in the canal, to which controls of the artificial limb are attached. The pull of the muscle and the balance of the opposing group of muscles must be considered in constructing the canals. The authors also take up consideration of the cases suitable for the canalization operations and realize there must be cooperation on the part of the patient first, to train himself to get control of the prosthesis. It is interesting to note, and not hard to understand, that the doubly-amputated are the most promising subjects for the cineplastic work. It also is interesting to note that they not only gain some power but also a sense of touch. If neuromata are present these are first removed. Ulcers, if present, are excised and the underlying bone trimmed. Exercises and massage are used to develop the muscles before the surgery is carried out.

An accurate and detailed description of the prosthesis is included, describing its mechanics.

This is an excellent book and is of great interest particularly at this time in view of the possibilities of war casualties. The operation still will be limited to very selective cases. The psychological and aesthetic advantages have been long recognized and for certain individuals, particularly those who have lost both hands, surgery and prosthesis of this type have a great deal to offer. The book is concise, clear, well written and well illustrated.

SHOCK TREATMENT IN PSYCHIATRY. By Lucie Jessner, M. D., Ph. D., and V. Gerard Ryan, M. D. Pp. 147. New York: Grune & Stratton, Inc., 1941.

This manual is a timely and lucid description of the technics of and indications for the various forms of shock therapy. It is a brief description, consisting of 147 pages, in which the authors have been careful to omit controversial material which would serve only to confuse their purpose. There is nothing particularly new offered in the applications of the treatments or in their understanding. The book is divided into three sections—namely, insulin therapy, metrazol convulsive therapy and electric convulsive therapy. It provides a ready reference for the initiated and also an excellent rapid survey of the field for the novice who is not primarily a psychiatrist. The carefully selected bibliography of 22 pages should prove valuable for extended reading in the finer aspects of the subject.

TEXTBOOK OF ANATOMY AND PHYSIOLOGY. By Diana Clifford Kimber, Carolyn E. Gray, A.M., R. N., and Caroline E. Stackpole, A.M., Associate in Biology, Teachers College, Columbia University. Eleventh edition. Cloth. Price, $3. Pp. 769, with 353 illustrations. New York: The Macmillan Company, 1942.

Much new material has been added to this eleventh edition and there has been a rearrangement of the subject matter. The number of illustrations has been increased, and some of the remaining illustrations have been redrawn. Many legends for the figures have been revised to offer better guidance in interpretation, to supplement the text and in some cases to give a rounded view of the subject concerned.

The sections dealing with the physiology of muscles, the mechanics of digestion and absorption, circulation, lymph, respiration and the visceral nervous system have been enlarged. In general, the chapters or groups of chapters follow in a sequence from anatomy to histology to physiology. What is needed for a real understanding of either anatomy or physiology is a study of each in terms of the other, or an appreciation of the interlocking relationships of both structure and function. This book can be highly recommended as a textbook of anatomy and physiology for schools of nursing.

FRACTURES AND DISLOCATIONS: COVERING THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By Kellogg Speed, S. B., M.D., F.A.C.S., Professor of Surgery (Rush) of the University of Illinois; Attending Surgeon, Presbyterian Hospital, Formerly Attending Surgeon, Cook County Hospital, etc., Chicago, Illinois. Fourth edition. Cloth Price, $12.50. Pp. 1106, with 1140 engravings. Philadelphia: Lea & Febiger, 1942.

The work on this book has been done entirely by the author. He believes that fractures seldom are so urgent as to justify overhurried treatment and he admonishes the surgeon caring for them to "stop, look and listen," to study the patient and the fracture and to proceed so intelligently that a full plan of treatment is visualized from the start. Speed presents such plans in this book. He makes it clear that fracture treatment cannot be learned by the demonstration of a moving series of cartoons that can be thumbed over in a minute to disclose the latest methods of treatment, particularly without any understanding of the anatomy and pathology.

This fourth edition is thoroughly revised and rewritten. Many new illustrations have been added. This edition is particularly useful in military practice. The care of open fractures is particularly emphasized and the methods are explained in detail. It considers gunshot injuries, chest injuries and a complete discussion of injuries to the spine. The indications for operations and technics are given concisely but comprehensively.

The illustrations are excellent and almost every page contains a helpful illustration. The references which follow each chapter are to articles which are available to all with even modest library facilities. The book can be recommended as a postgraduate course in the modern diagnosis and treatment of fractures.

PATHOLOGY AND TREATMENT OF WAR WOUNDS. By Sir Almroth E. Wright, M.D., F.R.S., Director of the Inoculation Department and Principal of the Institute of Pathology and Research, St. Mary's Hospital, London; Consultant Physician to the Army in France 1914-18. Cloth. Price, 21 s. Pp. 208. London: William Heinemann, Ltd., 1942.

This volume is a collection of Wright's papers mainly from the last war. Some of these are "An Address on Wound Infections," Royal Society of Medicine, 1915; "A Lecture on Wound Infections and Their Treatment," Royal Society of Medicine, October 1915; "A Lecture on the Conditions Which Govern the Growth of the Bacillus of 'Gas Gangrene' in Artificial Culture Media in the Blood-fluids in Vitro and in Dead and Living Organism," Royal Society of Medicine, 1916; "Further Observations on Acidaemia in Gas Gangrene and on the Conditions which Favor the Growth of Its Infective Agents in the Blood-fluids," Lancet, 1918; "On the Acidosis of Shock and Suspended Circulation," Lancet, June 1918; "The Conditions Under Which the Sterilization of Wounds by Physiological Agency Can Be Obtained," Lancet, 1918; "A Lecture on the Lessons of the War and On Some New Prospects in the Field of Therapeutic Immunization," Royal Society of Medicine, February 1919; "The Physiology of Wounds" (from the Official History of the War); "On 'Intertraction' Between Albuminous Substances and Saline Solutions," Proceedings of the Royal Society 1925 and 1926; with an Addendum 1942 and "The Question as to How Septic War Wounds Should Be Treated" (being a Reply to a Criticism by Sir W. Watson Cheyne, Brit. J. Surgery, 1916). These essays are of historical interest.

THE TIME OF MY LIFE: A FRONTIER DOCTOR IN ALASKA. By Harry Carlos De Vighne. Cloth. Price, $3. Pp. 336. Philadelphia: J. B. Lippincott Company, 1942.

This is a remarkable autobiography. The earliest dated recollection of this physician is following a torchlight procession down a New York street while the men in oilcloth caps and capes chanted of James G. Blaine. This boy sold newspapers on the Bowery. Then he was put on the train with twenty-nine other homeless boys bound for Iowa. Here he was adopted by a grandfather. He later ran away to join Uncle Ike, a son of the Iowa farmer, in Deadwood. His free ride on a freight train of this period furnishes a chapter of adventure.

When he was nineteen years old the idea of studying medicine was first presented after he had saved the life of a drunken, advertising doctor in St. Louis. He did not succeed in his first attempt to enter medical school and later became a sailor on a freighter filibustering arms to Cuba at the outbreak of the Spanish-American War.

The author really started to learn something of medicine while working for the Southwestern Insane Asylum. He was later given letters to a medical school in California. It is interesting to note that when De Vighne entered medical school not more than twenty per cent of the instruction was practical and laboratory work was all but nonexistent. After his graduation he went to Portland, Oregon, as an interne. After some time here he was asked by the hospital superintendent if he would like to go to Alaska where there was no doctor but plenty of pay patients.

The author accepted, having borrowed money to go steerage, and arrived at his Alaskan destination at 2 a. m. with five cents remaining of his capital. In his first month's practice he had collected nearly fifty dollars and the next month more than a hundred. He was married and soon after did his first abdominal operation. Three years later they moved to Juneau. Year by year they watched, and participated in, the transmutation of this small ugly mining camp into a bustling little city, the capitol of a domain in area one-fifth of the continental United States.

The author became one of the best known physicians in Alaska. This autobiography, from cover to cover, is an interesting and easily read story of a thrilling and useful life.

FUNDAMENTALS OF PSYCHIATRY. By Edward A. Strecker, M.D., Sc. D., F.A.C.P., Professor of Psychiatry and Chairman of the Department, Undergraduate School of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania Hospital; Attending Psychiatrist, Psychopathic Division, Philadelphia General Hospital. Cloth. Price, $3. Pp. 200, with 15 illustrations. Philadelphia: J. B. Lippincott Company, 1942.

The author wrote this book "in the hope of supplying briefly and concisely" a workable knowledge of psychiatry for both civilian and military branches of the profession, because of the urgent need for psychiatric insight brought on by the present war. He has achieved his goal in an admirably clear and simply written book. It is devoid of much of the detail and conflicting theories which would serve only to complicate and confuse the novice for whom it is intended. It has grown out of the teaching experience of the author and each presentation and diagram has been subjected to the test of the classroom.

The contents of the book include the general description of the formal fields of psychiatry. There are several sections of special merit. The discussion of psychosomatic medicine and indeed the general orientation on this level throughout the book should prove to give its reader a realistic comprehensive approach to psychiatry. This also is true of the section dealing with etiology. The pages dealing with the general consideration of the functional psychoses and psychoneuroses as well as those regarding schizophrenia are so descriptive and lucid that they will settle many doubts in the minds of the readers.

Although there is nothing new in this book, its treatment of the subject is sufficiently different from the usual textbook that it fills a need in the literature of psychiatry. It is highly recommended for nonspecialists, medical students and for any of the related professions who must deal with mentally disturbed people.

THE PATHOLOGY OF TRAUMA. By Alan Richards Moritz, M. D., Professor of Legal Medicine, Harvard Medical School; Lecturer in Legal Medicine, Tufts College Medical School; Lecturer in Legal Medicine, Boston University School of Medicine; Pathologist, Massachusetts State Department of Public Safety; Consulting Pathologist, Massachusetts State Department of Mental Health; Associate Medical Examiner of Suffolk County. Cloth. Price, $6. Pp. 386, with 117 illustrations. Philadelphia: Lea & Febiger, 1942.

This volume supplies what no other monograph does—a comprehensive treatise devoted primarily to the pathological aspects of lesions produced by mechanical violence especially from the medicolegal viewpoint. This deficiency in the literature is especially surprising in view of the fact that mechanical violence has always been one of the foremost causes of death and disability. The great increase in the incident of injuries by violence which has resulted from the recent spread of armed conflict throughout the world has further augmented the need for a more fundamental understanding of the subject.

In the first chapter the author considers under mechanical injuries: the reaction to injury, the types of wounds produced by mechanical injury, bullet wounds and injuries resulting from the detonation of high explosives. The second chapter discusses trauma and infection with considerations of exacerbation of disease by trauma; wound infection and delayed infection of traumatized tissue. The subject of trauma and tumors is considered in the third chapter. The author wisely concludes that it must be admitted, however, that even though experimental results fail to provide positive evidence that a mechanical injury may cause a tumor to form, the possibility that tumors may be produced in this manner has not been disproved. There are seven chapters on mechanical injuries to the various systems of the body.

In these chapters Moritz surveys the principal causes of such injuries, the manner in which they appear to produce functional or organic disturbances, the pathological characteristics of the resulting lesions, the pathogenesis of their complications and sequelae and certain types of collateral evidence likely to be of medicolegal interest. This volume is recommended to industrial physicians, to medical examiners and to lawyers who specialize in compensation and public liability cases.

PRINCIPLES OF ORTHOPEDIC SURGERY. By James Warren Sever, M. D., Assistant Professor of Orthopedic Surgery, Harvard Medical School; Orthopedic Surgeon, Children's Hospital, Boston; Associate Orthopedic Surgeon, Boston City Hospital; Orthopedic Surgeon, Cambridge Hospital, Cambridge, Mass.; Orthopedic Surgeon, Waltham Hospital, Waltham, Mass.; Orthopedic Surgeon, Quincy Hospital, Quincy, Mass.; Medical Director, Industrial School for Crippled and Deformed Children, Boston. Third edition. Cloth. Price, $3.25. Pp. 418, with 224 illustrations. New York: The Macmillan Company, 1941.

This is not intended to be a medical textbook but it is intended to supply the medical and nursing students with a knowledge of what orthopedic surgery comprehends and the most accepted methods of treatment. The material in this book is the result of many lectures on orthopedic surgery to students and nurses. These lectures alone did not fill the need for more detailed and visual knowledge of orthopedic surgery. Therefore, the author has in this volume supplied a primary knowledge of orthopedic surgery and its essentials of nursing technic so that all schools are able to provide, at least through a textbook, satisfactory and fundamental knowledge of orthopedic surgery for its pupils.

In discussing physical therapy the author does not give the details of the Kenny treatment for infantile paralysis although he does give the methods used for underwater exercises in this disease. There is a chapter on "Physiotherapy and Muscle Training, Heliotherapy." The author has overlooked that "physical therapy" is the term preferred by the American Medical Association. In a book for nurses on orthopedic surgery the subject of physical therapy is considered very briefly. In general this book will serve as an excellent textbook for nurses.

YOU DON'T HAVE TO EXERCISE! REST BEGINS AT FORTY. By Peter J. Steincrohn, M. D. Cloth. Price, $1.50. Pp. 207. Garden City: Doubleday, Doran & Company, Inc., 1942.

The philosophy of this volume can be seen from a quotation. "Chauncey Depew was asked: 'What do you think about exercise?' He answered: 'I get my exercise acting as pallbearer for my friends who exercise.'" The author calls attention to the fact that exercise and exertion are not synonymous. Exercise, in the ordinary sense, is the easy natural action of any power, while exertion is the putting of any power to strain or tax. However, exercise is generally accepted as meaning exertion and he is really writing about exertion.

In the chapter "Calisthenics—A Widespread Affliction" the author states that in certain conditions, such as arthritis, gymnastics may be necessary but in his experience for the middle-aged, calisthenics is a waste of energy. He presents good arguments that unnecessary exertion is harmful to individuals over forty because this procedure runs counter to established physiological principles and ordinary common sense. The author believes that good posture is antidote number one for exercise. He believes that if you give thought and effort to the need for good posture you could dismantle your private gymnasium. No form of exercise, other than that necessary in your daily work, will again seem important for your physical welfare.

This is written for lay readers and should be read by every person over forty. The theory of "rest begins at forty" is presented in an interesting manner which makes easy reading.

PSYCHOTHERAPY WITH CHILDREN. By Frederick H. Allen, M. D., Director, Philadelphia Child Guidance Clinc, Philadelphia. Cloth. Price, $3.50. Pp. 311. New York: W. W. Norton & Company, Inc., 1942.

The author has presented a difficult subject in a living, dynamic and clearly written fashion. He deals with a subject which is even more misunderstood than is the parent problem of psychotherapy in adults. Doctor Allen clarifies it first by preparing the ground work in giving an excellent description of the dynamics involved in the child's growth within the family sphere. He then gives a detailed account of the process of therapy and how to manage different types of children in treatment. One can obtain valuable insight into the significance of play therapy and actually see how it works in the therapeutic situation. Of particular value are the discussions dealing with the introduction and termination of treatment.

Although there is nothing new introduced in the book it is highly recommended for reading by anyone interested in the emotional problems of children. It gives a clear conception of what to expect in treatment and points out the importance of the play of forces in the family situation which so often also demands intervention. The psychiatrist interested in adult therapy can see demonstrations of the genesis of personality problems with which he must deal in his full grown patients.

HUMAN PATHOLOGY. By Howard T. Karsner, M. D., Professor of Pathology, Western Reserve University, Cleveland, Ohio. Sixth Edition. Cloth. Price, $10. Pp. 817, with 476 illustrations. Philadelphia: J. B. Lippincott Company, 1942.

A textbook is only an introduction to the essentials of a subject. The author emphasizes that it is only by observation, investigation and well directed reading that the subject matter can be kept abreast of the times. In this edition the text is simplified and clarified, new material has been added to make this volume comprehensive and modern. In order to avoid increase in size of the volume, certain discussions have been shortened and topics not strictly germane to the subject of pathology have been omitted.

This edition has been completely revised and reset. The format has been modernized by the printing of two columns to the page. The author believes this should facilitate reading and study.

A section on vitamin deficiencies has been included in the first chapter. The discussion of disturbances of circulation covers modern views on edema and on shock. The chapters on principles of infectious diseases has been enlarged to include examples of diseases due to protozoa, spirochetal organisms, Richettsiae and viruses. The material on infectious granulomata has been reclassified and a section on sarcoidosis added. The chapter on tumors has been mostly rewritten to incorporate the results of recent research.

In the chapters on systemic pathology, the subject of endocarditis has been reorientated, that of anemias has been rearranged in accord with current conceptions of hematology, the modern views on pneumonia and pneumonitis have been included, cirrhosis of the liver is presented in light of the newer studies of dietary alterations, and pyelonephritis is discussed with appropriate attention to its functional significance. Tumors of the gonads are now discussed in relation to their associated endocrine disturbances. The chapter on ductless glands has been brought into line with the prevailing views on endocrinology, with especial reference to tumors of these organs. The material on tumors of bones and of synovia has been rewritten. The chapter on the nervous system has been modernized especially in reference to viral diseases.

Over a hundred new illustrations have been added, most in halftone reproduction and some in color. Many are photomicrographs, reproduced in a size adequate for a comprehension of what is seen under the microscope. The photographs and photomicrographs largely replace the older and less instructive drawings. Many of the legends have been revised in order that they may be clearly explanatory.

The author, Howard T. Karsner, is familiar to all physical therapists as author of "Evaluation of Methods Used in Physical Therapy" which has appeared in the three editions of the "Handbook of Physical Therapy" published by the American Medical Association. This book on "Human Pathology" can be highly recommended.

AFTEREFFECTS OF BRAIN INJURIES IN WAR: THEIR EVALUATION AND TREATMENT. By Kurt Goldstein, M.D., Clinical Professor of Neurology, Tufts Medical School. Foreword by D. Denny-Brown, M.D., Professor of Neurology, Harvard Medical School; Head of Neurological Unit, Boston City Hospital. Cloth. Price, $4. Pp. 244, with illustrations. New York: Grune & Stratton, Inc., 1942.

In this book of less than 250 pages the author has compiled a wealth of information regarding the aftereffects of brain injuries in war. It is written in his usual concise, clear style which obviously bespeaks an intimate knowledge of his subject. The first part deals with the symtomatology of brain-injured soldiers from World War I. The description of the general neurologic and mental symptoms and their evaluation should be read by everyone dealing with such patients. In this section Doctor Goldstein also describes numerous psychologic laboratory examinations and their application in clinical cases. He points out how to evaluate the patient's general level of performance; how to ascertain the circumscribed mental defects for purposes of retraining; and finally how to appraise the subjects working capacity for resocialization.

Part II of the book describing the treatment of brain-injured soldiers is a masterly discussion of facts learned by wide experience. It concerns itself mainly with the retraining of the lost faculties of speech, reading, writing and calculation. One learns what great achievements can be obtained by the proper understanding of these functions and the importance of restoring some means of communication with fellow man. The author's last sentence is most descriptive. "Whoever meets these men will never cease feeling the debt that society owes to them, and the responsibility of alleviating the tragedy of their misfortune."

This timely book is most highly recommended to any physician, psychologist or speech instructor who will ever come into contact with brain injuries during the present conflict.

THE BIOLOGICAL ACTION OF THE VITAMINS: A SYMPOSIUM. Edited by E. A. Evans, Jr., Associate Professor of Biochemistry, the University of Chicago. Cloth. Price, $3. Pp. 227. Chicago: The University of Chicago Press, 1942.

At the present time the most striking advances in nutritional knowledge center about the vitamins. Their role has become more significant than first suspected as interest has turned to the specific action of these substances in the cell. Their therapeutic value for scurvy, beriberi and pellagra are well known. Also conditions more subtle in their manifestation than these deficiency diseases now appear to be caused by functional disturbances associated with vitamin deficiences. Even more striking is the fact that within the last decade investigations of the most varied type—studies of the growth requirements of bacteria, examinations of the nature of cellular respiration, clinical investigations of human nutritional deficiencies—have come to solutions involving the vitamins as a common denominator.

In recognition of this interest in vitamins the universities of Chicago and Wisconsin joined in a symposium on the respiratory enzymes and the biological action of vitamins at the fiftieth anniversary celebration of the University of Chicago in September 1941. These papers are being published in two volumes, of which this is one.

This presents fourteen papers on the biological action of the vitamins by investigators on specific subjects. It therefore contains the latest information on these actions and such information will be very helpful in our understanding of complete nutrition.

CENTRAL AUTONOMIC REGULATIONS IN HEALTH AND DISEASE: WITH SPECIAL REFERENCE TO THE HYPOTHALAMUS. By Heymen R. Miller, M.D., Associate Attending Physician, Montefiore Hospital, New York City. Introduction by John F. Fulton, M.D., D. Phil. (Oxon.) Sterling Professor of Physiology, Yale University. Cloth. Price, $5.50. Pp. 430, with 59 illustrations. New York: Grune & Stratton, Inc., 1942.

Fulton believes that recognition of the part played by the autonomic nervous system in the regulation of bodily functions may be ranked as one of the great milestones of modern clinical medicine. He states: ". . . . the physiologic concept of central integration of autonomic mechanisms, and the significance of overlapping representation of somatic and autonomic levels of function, have been particularly slow to find recognition and applications in clinical medicine. For this reason, one especially welcomes the concise and well-documented presentation that Doctor Miller offers in the present volume."

This book is written primarily from the point of view and out of the need of the clinician. It makes an intelligent appraisal of the autonomic functions and makes it clear that many patterns of clinical disease are partially or wholly expressions of autonomic activity and that this activity may or may not be associated with somatic alteration. Thus, the coronary form of angina pectoris is an example of an autonomic disturbance associated with an organic alteration in coronary vessels and in a complemental segment of heart muscle. But equally extensive and pronounced autonomic manifestations sometimes are observed in the noncoronary form of angina pectoris, in which there is no structural damage of the heart and its vessels. In other words, the autonomic nervous system may react as fully and vigorously in the absence as in the presence of somatic damage. The author shows that widely divergent clinical conditions such as cerebral apoplexy, pulmonary embolization, coronary occlusion, gallbladder disease, or food poisoning may resemble each other and defy clinical differentiation. The explanation for these reactions and simulations is to be sought in the common pattern of autonomic activities which are set off principally by central levels in the neuraxis. This book can be recommended as a reference book for physicians desiring information as to the central autonomic regulations in health and disease.

STARLING'S PRINCIPLES OF HUMAN PHYSIOLOGY. Edited and revised by C. Lovett Evans, D. Sc., F.R.C.P., F.R.S., LL.D., Birmingham, Jodrell Professor of Physiology in University College, London. The chapters on the special senses revised by H. Hartridge, M.A., M.D., Sc.D., F.R.S., Professor of Physiology at St. Bartholomew's Medical College. Eighth Edition. Cloth. Price, $10. *Pp.* 1257, *with 673 illustrations. Philadelphia: Lea & Febiger,* 1942.

This edition is the fourth that Evans has prepared of this book. The most considerable change in the present edition is in Book III which deals with the central nervous system. This has been entirely rewritten and incorporates the results of some of the more important recent investigations. The next most extensively revised part of the book is that dealing with reproduction, where a good deal of new matter has been added, and old material rearranged to suit more recent views. The material on the endocrine organs, on vitamins, on urinary secretion and those parts of physiology which are mainly biochemical has all been expanded and revised to reflect recent advances.

This volume contains 138 pages more than the seventh edition and 119 more engravings. The outlook of the "Principles" remains scientific rather than clinical, but the editor states "as the book is mainly used by students of medicine it is only fitting that there should be reference to such clinical matters as are of general interest to the subject and to some of those specific instances in which, as has often happened, physiological inspiration has come from the observation of clinical material." This edition presents to the medical student a comprehensive picture of physiology as it stands today.

ESSENTIALS OF NURSING. By Helen Young, Director of Nursing and Associates of the Presbyterian Hospital of the City of New York. Eleanor Lee, Editor. Cloth. Price, $3. *Pp.* 609, *with* 203 *illustrations. New York: G. P. Putnam's Sons,* 1942.

This book is a tribute to the Fiftieth Anniversary of the establishment of the School of Nursing of the Presbyterian Hospital in the City of New York. The graduates of the school analyze and record the principles and technics of patient care which have been an integral part of the education of the nurse in that school.

In this volume it is noted that in closing years of the last century the emphasis in the education of the nurse was placed upon baths, bedmaking and procedures for the personal care of the patient. This was before the laboratory became such an essential factor in diagnosis. To meet this change the modern nurse must have an expert technical skill and broad scientific knowledge. In this "Essentials of Nursing" the beginner will find the basic principles of nursing fully supported by good scientific facts. She will find, as she progresses, the more specialized care needed by patients with various conditions, together with an explanation of diagnostic tests. The graduate will find a ready reference book and one which will refresh her memory and give her a comprehensive view of therapies developed more recently.

Throughout this volume the consideration and treatment of the patient as a person is uppermost. His emotional traits as well as his physical needs are given careful study and sympathetic understanding. This book can be recommended to nurses and to nurses' training schools.

PERSONALITY AND MENTAL ILLNESS: AN ESSAY IN PSYCHIATRIC DIAGNOSIS. By John Bowlby, M.D., Psychiatrist, London Child Guidance Clinic, London. Cloth. Price $2.75. *Pp.* 280. *New York: Emerson Books, Inc.,* 1942.

Although in his own preface the author practically apologizes for writing this book, it seems to this reviewer that it still is insufficient reason to avoid being criticized for having written it. It deals with the very challenging subject of psychiatric classification and attempts to eliminate the distinction between psychoses and neuroses so as to afford a more logical prognosis. The author indicates that there are two known genetic types of individuals—syntomic and schizoid—who may develop fluctuating mental disturbances (neurosis or psychosis) depending upon personality subtype and degree of instability. He suggests the possibility of at least one more genetic type, namely, epileptic, but makes no attempt to explain what he means by this. He describes a very complex manner of determining the personality type and introduces new but quite confusing terminology to describe them.

Although it is a sincere attempt to deal with a difficult subject, the result is immature, full of conjecture and not sufficiently lucid to be a valid contribution. The work should be much more acceptable for periodical publication if it were written more clearly. There is very little in it to be recommended except to psychiatrists who wish to keep informed completely about the work being done in the field of psychiatric classification.

FIRST AID PRIMER. By Herman Leslie Wenger, M. D., New York Post Graduate Hospital and Eleanora Sense, B. Sc., M.Sc., Food and Nutrition Editor, "American Home" Magazine. Cloth. New York: M. Barrows and Company, 1942.

This is a smaller book than the American Red Cross First Aid Textbook and not as well illustrated. To get credit for a First Aid Course in Civilian Defense work, the course must be given by an authorized Red Cross instructor. The Red Cross Textbook which has been used in these courses is now being revised. This small book gives a good brief outline of first aid. It also contains chapters on civilian defense health aids, emergency feeding, blackout instructions and morale through nutrition, but it cannot be recommended.

THE PRINCIPLES AND PRACTICE OF MEDICINE: DESIGNED FOR THE USE OF PRACTITIONERS AND STUDENTS OF MEDICINE. Originally written by Sir William Osler, Bart., M.D., F.R.C.P. By Henry A. Christian, M.D., LL.D., F.A.C.P., Visiting Physician, Beth Israel Hospital, Boston; Hersey Professor of the Theory and Practice of Physic, Emeritus, Harvard University. Fourteenth Edition. Cloth. Price, $9.50. *Pp.* 1475, *with illustrations. New York & London: D. Appleton-Century Company, Inc.,* 1942.

The first edition of this "Practice of Medicine" was written fifty years ago by William Osler, while he was Physician-in-Chief of the Johns Hopkins Hospital in Baltimore. On the death of Sir William Osler in 1919 the work was continued by Thomas McCrae, then Professor of Medicine at Jefferson Medical School. In 1938, the 13th edition appeared under the present editor. Therefore, for a span of fifty years this volume has epitomized the practice of medicine as modified from edition to edition by the guiding hands of the various editors who have always been teachers and practitioners. These editors have interpreted their medical wisdom to succeeding generations of students and practitioners in the light of personal clinical experiences gained from ward visits, office and consultation practice and from the teaching of medical students.

In this 14th edition the text has been changed to fit recent advances in medicine and yet it has preserved the spirit of the former editions. Medicine is progressing with an accelerated tempo. For instance, therapy, using chemotherapeutic agents made and tested in rapidly increasing numbers, is undergoing many changes. To meet this need this edition is being published in order that the important new things in medicine can be made quickly available to students and practitioners. This book is to be highly commended as one of the best textbooks on the principles and practice of medicine.

ULTRAVIOLET LIGHT AND ITS APPLICATIONS INCLUDING A DESCRIPTION OF THE NUMEROUS PRACTICAL APPLICATIONS FOUND FOR ULTRAVIOLET LIGHT AND FLUORESCENCE IN THE INDUSTRIES, SCIENCES AND ARTS. By H. C. Dake and Jack De Ment. Cloth. Price $3.25. *Pp.* 209, *with illustrations. Brooklyn & New York: Chemical Publishing Company, Inc.,* 1942.

This book is not intended exclusively for physicians or physical therapists. It presents the most important of the innumerable practical applications which have been found for ultraviolet radiation and fluorescence in the industries, sciences and arts. The book is the culmination of a series of studies in this field. These authors also have written "Fluorescent Light and Its Application" and "Fluorescent Chemicals and Their Application."

In this volume the authors consider crimnology and police science; military applications; advertising; medical sciences; microscopy, research and education; chemistry; spectroscopy and petroleum and mining. Special attention is given to the numerous applications of ultraviolet radiation, recently developed, in the fields of military and police sciences.

The subject of ultraviolet radiation is presented in this monograph in a practical and nontechnical manner. It can be recommended to anyone wishing to know the applications of ultraviolet radiation in the many fields of human endeavor.

CLIMATE MAKES THE MAN. By Clarence A. Mills, M. D., Ph. D., Professor of Experimental Medicine, University of Cincinnati. Cloth. Price, $3. *Pp.* 320. *New York: Harper and Brothers,* 1942.

According to the author climate affects man's rate of growth, speed of development, resistance to infection and the amount of energy available for thought and action. In his vegetative tropical existence he is much more susceptible to infectious diseases, while in temperate coolness the stress of a more energetic life causes frequent breakdown in his body machinery and raises the incidence of heart failure to a leading position among the causes of death. There is much evidence that surprising and powerful effects are exerted on human beings by two outside factors: climate and the weather. Weather changes affect man but somewhat differently than climate. In the earth's active storm belts, violent and frequent storms become an important factor of existence, adding spice to life, but at the same time interfering with body functions and bringing on many serious ailments. All the conjectures and theories on just what climate does to us seem to find their answers in this book. It is recommended not only as interesting but as authoritative reading.

POSTURE AND NURSING. By Jessie L. Stevenson, R. N., Consultant in Orthopedic Nursing, National Organization for Public Health Nursing, New York. Published and Distributed by the Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education. Paper. Pp. 63, *with illustrations. New York,* 1942.

As usual Miss Stevenson packs a small manual full of information. This handbook will assist nurses in all fields to apply the principles of posture and body mechanics in all their activities. This book should be read by all physical therapists and nurses. It is highly recommended as a textbook in schools for physical therapy technicians, and for nurses.

Part one discusses posture, body mechanics and functional anatomy. The second part considers body mechanics applied to nursing, how a nurse can improve her posture, posture in maternal and infancy care; the posture of the preschool and school child; orthopedic implications in industrial health and general illness. The appendix contains an outline of the movements of joints illustrated with line drawings.

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